STIC-Biotech/ChemLib

18/105 ME

From:

Mertz, Prema

Sent:

Thursday, March 02, 2006 2:44 PM

To: Subject: STIC-Biotech/ChemLib

10/695,994

Please search any 6 amino acids of SEQ ID NO:7 with protein databases.

Thanks.

Prema Mertz, Ph.D., J.D. Primary Examiner Art Unit 1646 4D81 Remsen Bldg Mailbox 4C70 US Patent & Trademark Office Tel # (571) 272-0876 FAX # (571) 273-0876

Searcher:
Searcher Phone:
Date Searcher Picked up:
Date completed:
Searcher Prep Time:
Online Time:

Type of Search

NA#______ AA#:_____

S/L:____ Oligomer:____

Encode/Transl:____

Structure #:____Text:___

Inventor:____ Litigation:___

Vendors and cost where applicable STN:
DIALOG:
QUESTEL/ORBIT:
LEXIS/NEXIS:
SEQUENCE SYSTEM:
WWW/Internet:
Other (Specify):

iuis hade Blauk (nabio)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Perfect su
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq
seq
    of hits satisfying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    %
Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                            100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OLIGO /
Gapop 60.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-695-994A-7
220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2443163 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Listing first 1000
                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MELQRTSSISGPLSPAYTGQ.....QNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          geneseqp1980s:*
geneseqp2000s:*
geneseqp2001s:*
geneseqp2001s:*
geneseqp2002s:*
geneseqp2003as:*
geneseqp2003bs:*
geneseqp2004s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _Geneseq_21:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4, 2006, 07:02:06; Search time 187 Seconds (without alignments) 516.916 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20000000000
                                      GenCore version 5.1.7
(c) 1993 - 2006 Biocceleration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapext 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439378781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chosen
                                                                                                                                                                                                                                                ADF74494
ADQ88366
AAW81640
ADF13682
AAW81639
ADF74491
ADQ88363
ADQ88363
ADQ88363
ADQ88363
ADQ88363
ADQ88363
                                                                          ABP65068
ABM80299
ADZ70337
AAW81642
ADJ70287
ADX06608
ABR41636
AAU01183
AAY05494
                    ABP41709
ABB61876
ADF74518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4830
                    Adx06608
Abr41636
Aau01183
Aay05494
Abp41709
Abb61876
Adf74518
                                                                                                                                                                                                                                                                                                                                                                Adf74494
Adq88366
Aaw81640
Adf13682
Aaw81639
                                                                                                                                                                        Adz7033
Aaw8164
                                                                                                                                                                                                              Abp65068
Abm80299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                        Adj70287
                                                                                                                                                                                                                                                                      Abu70517
                                                                                                                                                                                                                                                                                        Abu70467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ltd
                                                                        Mouse elf
Mouse bet
Mouse elf
Mouse elf
Murine elf
Muse elf
Murine elf
Muse elf
Muse elf
Muse elf
Muse elf
Full-leng
Human adi
Human hea
Hypoxia-i
Tumour-as
Human pro
Mouse elf
Human hea
Gyclin-de
Human DIT
Rat gluta
BetaIII s
Human ova
Drosophil
Peptide f
Mouse elf
                                                                                                                                                                                                                                                                                                                                                                                                                                            Murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220
    3433
3433
3433
4576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2105
3064
3215
3227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABB63123
ADM72217
ABR41653
ABB63142
ABB631424
ADG24315
ADL24315
ADL26296
ADX26296
ADX262304
ADE62307
A
                                                                                                                                                                                                                                                                                                                          ADP55624
ADO55184
ADY64900
ABJ25461
ABM88463
ABJ26061
                                                                                                                                                                                                                                                                                                                                                                                                                                              ADJ68925
ADJ68926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADO44170
ABO14706
ADS11060
ADS11061
ADW10726
AAW22017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADP55039
AAW22016
AAB67964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAU14697
ABB71136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADN04004
AAU14603
ADJ68935
ADZ85102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP90290
ADL83110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AEA24046
AAP90373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADN22598
ADN22599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADV13561
ADV3562
AAW81644
ADF74507
ADQ88379
ADQ65644
AAB50652
AAV59242
AAY59242
AAY59247
AAY59247
AAY59237
AAY59237
AAY59237
AAY59237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB67963
                  Adq30518
Aab90771
Abg34124
Abu89754
Ad124316
Aab63240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aea55025
Aay59242
Aay59241
Aay59237
                                                                                                                                                                                                                                                                                                                                                                  Ady64900
Abj25461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Abb67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ado441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aea1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Adw10726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ads11060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Aea24046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Aay59239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aay59238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Adn2372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Adn04004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aay59240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human pho
Human pho
Mouse elf
Peptide f
Mouse elf
Mouse elf
S. manson
C. elegan
Bacterial
Human act
A rod sho
Bacterial
Bunterial
Human PRO
Human 
Utrophin.
Utrophin.
Human hea
Human hea
Human pRO
Protein #
S. manson
Rice abio
Aspergill
Drosophil
Drosophil
Drosophil
Drosophil
Human DIT
Drosophil
Human alp
AW755252-
Human she
Human brotein d
AW755252-
Hu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel human sec Novel hum Partial splant ful plant ful plant ful plant ful Amino aci Human pro Utrophin Amino aci Structura Novel human the Human the
```

162 163 164 165 166 167	157 158 159 160 161	153 153 154 156	147 148 149 150	141 142 143 144	136 137 138 139 140	129 130 131 132 133	121 122 123 124 125 126 126	114 115 116 116 117 118 119	100 100 100 100 100 100 100 100 100 110 111
	11111	7777	JJJJJ	17777	11111.	1111111	222224	1111111	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
									, , , , , , , , , , , , , , , , , , ,
2222 2222 2354 2554 259									
									4 ABG20749 2 AAR94882 2 AAR94882 2 ABB06340 5 ABB06340 6 ABU03980 6 ABU03980 6 ABU03978 6 ABU03978 6 ABU03978 8 ABU03976 4 AABS7815 8 ADN23857 8 ADN23856 9 AAW81644
Aab63595 Human gas Addr15444 Rhodococc Addx72785 Plant ful Ad821602 Bacterial Aag53994 Arabidops Aag56913 Arabidops Aag29454 Arabidops Aag29454 Arabidops Aag56915 Human pro Adf60612 Human con	8396 Rice 3593 Huma 1582 Puri 1583 Huma 9497 Bact	5572 8909 5425 1070	Nove Prot Allo Dise	1297 1284 10654 10213	1597 1597 1665	101 575 865 409 409 237 237	926 926 988 988 150 150 150 150 150	3378 E 3339	Novel hu Transcri Cellular Cellular Human p3 Human ex Bacteria Bacteria Human ex
235 236 237 238 240 241 242 243	230 231 232 233 233 234	225 226 228 229	222 222 223 224	215 215 217 218	209 210 211 212 213	2005 2005 2008	195 196 197 198 199 200	187 188 189 190 191 192	173 174 175 176 177 178 179 180 181 182 183 183
77777777				11111		777777	1111111	1777777	1111111111111111
								เล่นล่นล่นล่	
									30000000000000000000000000000000000000
									AAG06912 AAG53993 ADX89926 ADT58314 ADT58314 AAR796128 ADC39152 ADX79880 ADU01159 ADU01159 ADV12568 ADV12568 ADW17390 ABG03251 ABG38671 ABG38671
על ע	Ad Ab Aab	Abj Adi Aac Abc	Abb Ads Abo Aag Abj	Ado Ado Abo Ade	Aay3 Abr4 Abg7 Abu9 Abu9	Adci Adga Aags Aago Abba Aaea Adza	Almiga Abriga Abriga Adbi Abbs Adca Agya	Aduo Adq6 Aay9 Aay9 Ad17 Ad17 Aay4	Aag06912 Aag53993 Adx89926 Adt58314 Aar96128 Adc39152 Adw178880 Adw17856 Adw175561 Adw17390 Adw17390 Adw17390 Adw17390 Adw17390 Adw17390 Adw6903251

33333333333333333333333333333333333333	244 245 246 247
	1111
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
ADB65325 ADB65325 ADB65325 ADD755338 BD0766691 ADD766691 ADB66693 ADD66693 ADD66693 ADD66693 ADD65109 ADD65109 ADD65109 ADD65109 ADD65109 ADD65109 ADD66108 ADD6108 ADD7119 ADD89913 ADD899	
Adhe Adhe Adhe Adhe Adhe Adhe Adhe Adhe	Abp Aabb Ade Aag
5325 Human problems of the certain o	Drosophi Human pr Novel pr Human co
	- F 6 6 F .
	317, 318, 319, 320,
444444444444444444444444444444444444444	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
1004 1004 1004 1009 11000 11000 11100 11100 11100 11100 11100 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 11150 1115	
4 ABBS21846 6 ABU08495 6 ABU08495 8 ADX47308 3 ADX47308 4 AAB93286 6 ABU01574 6 ABU01574 9 ADD750150 9 ADW71996 5 ADW719916 5 ADW719916 6 ADU0169191 9 ADW71981 6 ADW71996 7 ADD815137 6 ADB92816 7 ADD71298 8 ADW71996 9 ADW71996 8 ADW71996 8 ADW71996 8 ADW71996 8 ADW71997 9 ADW71998 8 ADW71998 8 ADW71998 8 ADW71998 8 ADW71998 9 ADW71998 8 ADW71998 8 ADW71998 9 ADW71998 8 ADW71998 8 ADW71998 9 ADW71998 8 ADW71998 9 ADW71998 9 ADW71998 8 ADW71998 9 ADW71999 9 AD	
4.9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	550
	553 553
Abb52486 Abb62186 Abb62186 Abb62186 Abb62186 Abb62186 Abu08495 Adk47308 Aay81511 Aab292563 Ady70491 Adf50152 Adf50152 Adf50152 Adf50152 Adf80159 Adf50152 Add6443 Add6403 Adf90169 Adw71961 Adw719663 Add64865 Add61021864 Add71974 Add1021864 Add71974 Add1021864 Add71961 Adw71963 Add64866 Adw71961 Adw71963 Add716913 Adw71978 Adw71981 Adw7	

458 460 461																				27		24		21		18	17	15	<u> </u>	12		9	08	3 6	0.5		02	28		98 7	96		93	92	91
, , , , , , , , , , , , , , , , , , , ,																		•	•																										
20.77	2.7	2.7		7			2.7											. 7	. 7	.7	7	.7	. 7	.7	. 7	. 7		.7	., .	, ,	.,:	.7	. 7	, ₁	. 7	.,	7 :	, A	21	N N		21	9 N		2
220020	00	00	00	00	00	0	6	oσ	ω,	w w		<b>ж</b> 0	1 01	01 0	1 01	01 0	,, 0,		0.0		-	, 0					-		-								œι	<b>4.</b> R	44	A 4	N		N K	N	N
ADM342 ADV126 ADV126 AAY274		AAE337 AAE337	AAE337	ABG546 ABG428	AAM603	AAM331	ABG442	AAM616	AAM743	ABB249	ABB407	ADV227	ADV227	ADG424	ABP248	ABP248	ABP250	AAB457	AAB106	AAY930	ADD963	ADD964	ADD966	ABU698	ABU700	ABP243	ABP222	ABP240	ABP1509	ADN6349	ADN6422	ABP2401	ABP141	ABP1653	ABP1841	ABP1652	ABP1415	ADH0990	ADH0990						
Adm34205 Vpr prote Adv12687 Human pho Adv12688 Human pho Adv27490 E. coli b	Aae33748 Murine sk	Rabb Huma	Huma	Abg54681 Human 11V Abg42809 Human pep	Huma	Aam33196 Peptide #	Abg44298 Human pep	Abassissa Human bra	Aam74392 Human bon	Aam34506 Peptide # Abb24962 Protein #	Abb40740 Peptide #	AQV22/24 HIV-I VDT Aaw54197 Human IEF	Adv22723 HIV-1 Vpr	Adg42432 Mouse Zal	Abp24860 HIV DR su	Abp24863 HIV DR su	Abp25030 HIV DR 3b	Aab45763 Murine Za	Aab10690 HIV-1 reg	Aay93011 Transform	Add96343 HIV-1 cro	Add96424 HIV-1 cro	ADU69785 HUMAN 1mm Add96615 HIV-1 cro	Abu69891 Human imm	Abu70082 Human imm	Abp24368 HIV A24 m	Abp22231 HIV A03 m	Abp24007 HIV All m	Abp15097 HIV A03 s	Adn63496 HLA bindi	Adn64228 HLA bindi	Abp24011 HIV All m	Abp14164 HIV A02 s	Abp16538 HIV A24 s	Abp18412 HIV B58 8	Abp16526 HIV A24 s	Abp14150 HIV A02 8	Adh09906 Human nos Ado44172 Structura	Adh09904 Human hos	Ade78997 Human pro	Adkili303 Human CRE	Abu03965 Human exp	Abu03981 Human exp Abu03967 Human exp	Abu03979 Human exp	Abg95114 Human tra
532 532 533 535	529	527 528	525 526	524	522	520	519	518	516	515	513	512	510	509	507	506	505	503	502	500	499	497	496	494	493	491	490	488	487	4865	484	482	481	479 480	478	476 477	475	474	472	471	469	468	467	465	464
n																																													
22222								2.7	•	2.7	•	2.7										2.7			2.7			2.7		2.7		2.7		2.7		2.7	2.7	2.7	.7	2.7		2.7			
უ																															39														
4 AAM67052 4 AAM67052 4 AAM54648 4 ABG48719 4 AAM02640	ABBS	ABBS	ABOS AAMI	ABME																		ADV76854 B ADX67823														AAU13303	ABBO	AAB7	ABG02	AAB92	AARIJ	ADAO	AAYOZ	ADE 6	ADH94
Aam54648 Aam54648 Abg48719 Aam02640	Aam8516 Abb2870 Abh1932	Abb3388 Aam2734	Abo5630 Aam1491	Abm64891	Abm5318:	Aau5666	Aay1144	Abg37120	Abg4917.	Aam55136	Abb19760	Abb2918	Abb3433:	Aam15341	A895535: A8955743	Aag60175	Aag58776	Adv82907	Adv89484	Aay40954 Aab10686	Ad807325	Adv / 6854 Adx 67823	Abb16877	Aau9103:	Aam71537	Abo53835	Aao04190	Aay98341 Aam89487	Abg46197	Abg58805	Aam77182	Abb26399	Abb43428	Aau21084 Aam21113	Ade02253	Aau13303	Abb02233	Aab77750	Abg02419	Aab92062	Aae11218	Ada07484	Aay02793	Adm37166	AQD94630
2 Human 8 Human 9 Human 9 Fuman	7 Human in 0 Peptide 3 Protein		9 Human	Propioni	Propionib	4 Propi	Human	Human	Human li	Human	) Protei	Peptide #	Peptid	Peptid	Arabid	Arabid	Arabid	Strept	Strept	HIV-1 reg	Staphy	Plant	Human	Transplar	Human	Human Bovine	Human pol	uemuh	Human pe	Human	Human	Protein	Peptide	Peptide	ybric	DP178-1	/ira	Core poly	OVE	3rowt]	Salmo	֓֞֓֓֓֓֓֓֓֓֟֓֓֓֓֟֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֟֓֓֓֓֓֓֓	rac	Anti-IR f	181

5446 5546 5546 5556 5556 5556 5556 5556	5544 544 544 544 544 544 544 544 544
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
4 AAU50900 4 AAU50900 4 AAU50900 4 AAU50900 4 AAU50900 4 AAU50900 6 ABM43048 6 ABM43041 6 ABM430447 7 AAU505270 8 ADP07828 4 AAU505270 4 AAU505270 4 AAU505239 4 AAU505239 4 AAU507739 6 ABM507739 6 ABM507739 6 ABM507739 6 ABM507739 6 ABM507739 7 AAU507722 7 AAU50739 7 AAU5073	•
222222222222222222222222222222222222222	2
Aaus 1900 Propionib Abm43048 Propionib Abm43048 Propionib Abm47419 Propionib Abm474471 HIV viral Aaus 1928 Propionib Abm38447 Propionib Abm38447 Propionib Abm38447 Propionib Abm38447 Propionib Abm38447 Propionib Abm3846121 Propionib Abm586121 Propionib Abm596128 Human sec Adp07828 Human sec Adp07828 Human sec Aus 1929 Propionib Abm50513 Propionib Abm50513 Propionib Abm50513 Propionib Abm50513 Propionib Abm50513 Propionib Abm60521 Propionib Abm60521 Fropionib Abm60521 Lung spec Adf94731 Hepatitis Abm48717 Propionib Adf07640 Bacterial Abm51318 Propionib Adf07640 Bacterial Abm51318 Peptide # Abb51318 Propionib Abm63239 Propionib Abm63239 Propionib Abm63239 Propionib Adf077640 Human bra Abb51318 Peptide # Abb5177 Human bra Abb51818 Propionib Abm63277 Human Dra Abg47577 Human GEN Abg47577 Human GEN Abg75057 Human imm Abp75057 Human imm Abp750	bb17456 Human ner bg36709 Human pep bg36709 Human pep su60632 Propionib su63534 Propionib su63534 Propionib su63534 Propionib su635854 Propionib su63598 C glutami su63603 Arabidops
	# # # # # # # # # # # # # # # # # # #
00000000000000000000000000000000000000	609 610 612 613 614 616 617
••••••••••••••••••••••••••••••••••••••	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
29999999999999999999999999999999999999	1 000000000000
ABOR 0837 ABOR 0837	AAM3 4 055 ABB2 4 7 3 9 AAM7 3 8 7 3 AAM6 1 1 5 9 ABG5 5 6 2 4 ABG4 3 7 6 1 AAG5 8 7 7 6 AAG6 0 1 7 3 AAG5 8 7 7 6 AAG5 8 7 7 6
	·
Abou 1336 Abou 136 Abou 136 Aaa 3051 Aaa 4050 Aaa 4065 Aaa 4065 Aaa 4066 Aaa 4066 Aaaa 4066 Aaaaa 4066 Aaaa 4066 Aaaaa 4066 Aaaa 4066 Aaaaa 406	Aam34055 Abb24739 Aam61159 Abg55624 Abg55761 Aag57761 Aag57761 Aag57761 Aag57761
Pseudomon Human Film Pseudomon R18 antig R18 a	Peptide # Protein # Fuman bon Human liv Human liv Human pep Arabidops

698 77099	00000000000000000000000000000000000000
თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ 	, თ თ თ თ თ თ თ თ თ თ თ თ თ თ
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	
AAM59307 ABM53838 AUU57319 ABM53838 AUU57319 AUU5718234 AUU5718234 AUU5718234 AUU5718234 AUU5718234 AUU5718234 AUU5718234 AUU518234 AUU5	
Aabb 9307 Aabm53838 Ade 78234 Adl 15114 Adl 16114 Adl 26114 Adl 2616 Aak 40850 Aappl 1863 Aar 12258 Aar 12258 Aar 29951 Aar 29961 Aaw 9981	Aam75112 Aam62309 Abg5687 Abg5687 Abg44796 Adx40868 Adx40868 Adx92733 Abg271873 Abg33004 Abg02968 Abg02968 Abg02968 Abg06512 Abb4861 Adl90099 Aab693311
Propionib Propionib Propionib Endometri M. catarr HIV Vpr p HIV-1 str HIV Vpr p Sequence HIV-1 str HIV Upr p HIV L68S HIV L68S HIV A30S HIV A30S HIV A59P HIV U575A HIV U575A HIV U575A HIV U775A HIV U775A HIV U775A HIV U775A HIV 1675 HIV C76S HIV A59P HIV 167S HIV L67S HIV L67S HIV L67S HIV L67S HIV L67S HIV-1 vpr p HIV-1 vpr p HIV-1 reg HIV-1 reg HIV-1 vpr	Human bon Human bra Human bra Human liv Human pep HIV 1 non Novel hum Human ORF Arabidops Novel hum Human ORF Human
7773 7774 7773 7774 7775 7780 7781 7781 7781 7782 7783 7783 7788 7788 7798 800 800 800 800 800 800 800 800 800 8	755 756 758 759 760 761 762 763 764 766 766 766 769
, , , , , , , , , , , , , , , , , , ,	n n n n n n n n n n n n n n n n n n n
998 4 998 4	
9 ARBILOSSO 9 ARBILOSSO 9 ARBILOSSO 9 ARBILOSSO 9 ARBILOSSO 4 ARIGG1144 4 ARIGG11735 5 ARBO6495 8 AROCS9158 8 AROCS9114 6 ARBG211795 4 ARRO17795 4 ARRO17795 4 ARRO17793 8 ARDW81306 7 ARDH87220 8 ARWS5614 9 ARWS5616 10 ARWS5616 11 ARWS5616 12 ARWS5616 13 ARWS5616 14 ARWS6616 15 ARWS6616 16 ARWS6616 17 ARWS6616 18 ARWS6616 19 ARWS6616 10 ARWS6616 10 ARWS6616 10 ARWS6616 11 ARWS6616 12 ARWS6616 13 ARWS6616 14 ARWS6616 15 ARWS6616 16 ARWS6616 17 ARWS6616 18 ARWS6616 19 ARWS6616 10 ARWS6616 10 ARWS6616 10 ARWS6616 11 ARWS6616 12 ARWS6616 13 ARWS6616 14 ARWS6616 15 ARWS6616 16 ARWS6616 17 ARWS6616 18 ARWS6616 19 ARWS6616 10 ARWS6616 10 ARWS6616 10 ARWS6616 11 ARWS6616 12 ARWS6616 13 ARWS6616 14 ARWS6616 15 ARWS6616 16 ARWS6616 17 ARWS6616 18 ARWS6616	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Aeb10599 Aau61135 Abu016144 Abm6263 Abg01735 Abp05867 Abp05867 Abp05867 Abp05867 Abp05867 Abp05867 Abp05867 Abg05370 Abg05370 Abg05370 Abg061181 Abg261181 Abg261181 Abg267181 Abg067725 Addv87856 Addv87865 Addv87865 Addv87865 Addv87865 Addv87865 Addv87866 Abg0695 Addv87865 Addv87865 Addv87865 Addv87865 Addv87865 Addv87866 Abg06951 Abg06951 Abg06951 Abg06951 Abg09541 Addv878630 Addv87865 Addv878666 Aau50011 Abg06951 Abg09541 Addv878666 Aau50016726 Addv8786530 Addv878666 Aau50016726 Addv8786530 Addv8786530 Addv8786530 Addv878666 Aau50011 Addv87865 Addv878666 Aau50016 Abg09541 Addv878666 Abg09541 Addv878666 Abg09541 Addv878666 Abg09541 Addv8786666 Addv87866666 Addv87866666 Addv87866666 Addv87866666 Addv87866666 Addv878666666 Addv878666666 Addv878666666 Addv8786666666666666666666666666666666666	X40865 X40881 X40891 X40893 X40873 X40877 X40844 X40884 X40884 X40884 X40887 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885 X40885
Clade B v Propionib Propionib Novel human ORF Pseudomon Plant ful HIV-1 gro Zea maye Novel hum Novel human gen Novel human gen Novel human braptide # Propionib Streptoco Albumin ful Peptide # Human bra Streptoco Plant ful Peptide # Human mus Streptoco Stre	HIV Vpr p HIV-1 Vpr p Clade C v Clade B v Clade B v

		0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1 W KJ KJ
ຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓ		n a a a a a a a a a a a a a a a a a a a	1000
88888888888888888888888888888888888888		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2.7
		1111 1111 1112 1112 1113 1113 1113 1113	
		9 ADV37612 9 AAW38667 4 AAW384540 4 AAU48005 4 AAU48005 4 AAU48005 8 ADN17279 8 ADN16842 9 AAW355179 4 AAW55179 4 AAU52411 AABC5179 6 ABU45568 6 ABU45568 6 ABU45568 6 ABU16015 7 ADD124565 7 ADD12459 8 ADD133451 8 ADD33543 8 ADD33543 8 ADD35914 9 AEB07696 9 AEB07696 9 AEB07696 9 AEB07696 4 AAU480066 4 AAU480066 4 AAU480066 4 AAU491302 4 ABG259941	
Mouse se P. furio Human se Zea mays Human im Human im Human jo Staphylo Sta	plant f Soybean Soybean Amino a Staphyl Staphyl Staphyl Staphyl Staphyl Staphyl Human m Human m Human m Human m Propion Propio	6612 540 540 540 540 540 540 540 540 540 540	ha ha ha
960 961 962 963 964 965 966 968 970 970 971	υ ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο	905 906 907 909 909 911 911 911 911 911 911 911 921 921 92	901 903
		, , , , , , , , , , , , , , , , , , ,	
140 140 141 141 141 141 141 142 142 142 142	140 1130 1130 1130 1130 1130 1130 1130 1	125 125 126 126 126 127 127 127 127 128 128 128 129 129 129 129 129 129 129 129 129 129	125 125 125
		4 AAMO4220 4 AAMO4220 5 ABG38258 5 ABG38258 6 AAG44910 4 AAB79706 7 ABG72980 7 ABG72980 7 ABG72970 8 ADS5363 2 AAM88539 2 ABBS0306 5 ADC35127 6 ABG4563 7 ABG75924 4 AAG75924 4 AAG75924 4 AAG75924 6 AAG75927 6 ABG8651 7 AAG75924 7 A	
Aam79	Aegyo Aegyo Abb11 Abb11 Abb67 Abe67 Abe68 Adx66 Adx66 Adx86 Adx89 Aeb91 Abb89 Adx99 Adx94 Ady11 Abg99 Ady11 Abg99 Ady11 Abg99 Ady11 Abg99 Ady11 Abg99 Ady11 Abg99 Ady12 Abg99	Abg503428 Aam0428 Aam0429 Abg38258 Aag94910 Abg24910 Abb72980 Abb72980 Abg20770 Ads15037 Adx9533 Aaw88539 Abb644563 Abb644563 Abb644563 Abc44563 Abc44563 Abc44563 Abc44563 Abc44563 Abc446641 Abc66611 Abc466611 Abc466611 Abc466611 Abc46661 Add536661 Abc46661 Add536661 Add637424 Aau48942 Abu48942	Abb20 Aam68 Aam56
10866106446123			967

```
ADEPTORY

AND ADDEPTORY

AND ADDEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          murine; mouse; early liver development; end stage liver disease; elf 1-3; liyor-1 (145); pk; protein 106; praja-1; hepatocyte lineage; cholestasis; biliary stone; hepatic obstruction; stricture; primary biliary cirrhosis; primary sclerosing cholangitis; gene therapy; anhidrotic ectoderm dysplasia; hepatocellular carcinoma; anaemia; ataxia;
                      New antibodies recognizing early liver development proteins, useful as markers, in identifying peptides and proteins having early liver development characteristics, tracing hepatocyte lineage or treating li
                                                                          WPI; 2003-851362/79.
N-PSDB; ADF74493.
                                                                                                                                                                 30-APR-1997;
30-APR-1998;
                                                                                                                                                                                                                                                                                                           neuroprotective; antianaemic;
                                                                                                                                                                                                                                                                                                                       neurological disorder;
                                                                                                                                                                                                                                                                                                                                                                                                             Murine elf-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADF74494;
                                                                                                                                                                                                        01-NOV-1999;
                                                                                                                                                                                                                                04-NOV-2003
                                                                                                                                                                                                                                                         US6642362-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADF74494 standard;
                                                                                                                                        (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aaaaaaaaaaaaaaaaaaaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           инивининининининининининини
                                                                                                                                                                                                                                                                                                                                                                                                             protein used
                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲
                                                                                                                                                                 97US-00841349
98WO-US008656
                                                                                                                                                                                                      99US-00431184.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
143
144
                                                                                                                                                                                                                                                                                                                      haemochromatosis; hepatotropic; cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADI42470
AAY93242
ADH87764
ADO22037
ADY05647
AAB29069
AEB29067
AAB25420
AAB43074
ABG20929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADB84387
ADM26145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABO77145
AAG17619
ABG07326
ABG29930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADK35186
ABU33774
ABP60617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG32302
ADO62119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAG48037
AAG18704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAG45233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADG14833
                                                                                                                                                                                                                                                                                                                                                                                                             treat end stage liver disease
                                                                                                                                                                                                                                                                                                           cardiant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aab43074
Abg20929
Adk35186
Abu33774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSRV asso
Opacity a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel hum
Novel hum
MSRV-1 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidops
Pseudomon
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            An Escher
Enterococ
Silicibac
Plant ful
Human Ovo
Human Ovo
Pinus rad
Human ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arabidops
Transcrip
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel hum
Protein e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human
Novel
Novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hun
```

```
RRESULT 2
ADQ88 36
XX ADQ88 XX
XX ADQ88 XX
XX ADQ88 XX
XX MOUS
XX MOUS
XX MOUS
XX BA11
XX Heps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This invention relates to novel genes and encoded proteins thereof, cc isolated during early liver development that are useful in the diagnosis cc and treatment of end stage liver disease and other disorders. Specifically, it refers to genes that encode proteins such as elf 1-3, cc Specifically, it refers to genes that encode proteins such as elf 1-3, cc describes the characterisation of these early liver development proteins, cc and also methods to raise peptide specific antibodies that are useful as cc markers, as well as for tracing hepatocyte lineage. Furthermore, elf proteins 1-3 are useful in treating disorders including cholestasis, cc proteins 1-3 are useful in treating disorders including cholestasis, cor primary sclerosing cholangitis. In addition, through using gene ct therapy, praja-1, liyor-1 (145) and pk can be used to treat anhidrotic ectoderm dysplasia, hepatocellular carcinoma and other diseases including canaemia, ataxia, degenerative neurological disorders and cardiant. This hepatotropic, cytostatic, neuroprotective, antianaemic and cardiant. This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Sim:
Matches 220;
                                                                                                                                                                                                                                                                                                                                                                                                     Early liver developmental protein; liver disease; hepatocellular carcinoma; anhidrotic ectoderm dysplasia; heepatocellular carcinoma; anhidrotic ectoderm dysplasia; haemochromatosis; diegenerative neurological disorder; anaemia; ataxia; haemochromatosis; sideroblastic anaemia; spinocerebellar ataxia; cholestasis; biliary stone; liver obstruction; stricture; primary biliary cirrhosis; primary sclerosing cholangitis; colon cancer; therapy; mouse; elf-1; embryonic liver fodrin; beta spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hepatotropic, cytostatic, neuroprotective, antianaemic and cardiar polypeptide sequence is the murine elf-3 protein of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADQ88366 standard; protein; 220 AA.
                                30-APR-1998;
01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mouse elf-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADQ88366;
                                                                                              30-APR-1997;
                                                                                                                                                        30-OCT-2003; 2003US-00695994
                                                                                                                                                                                                                                                                                    US2004142354-A1
                                                                                                                                                                                                                                                                                                                                              Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MELORTSSISGPLSPAYTGOVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSHDIVDGNHRLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             220 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSHDIVDGNHRLTTLELLEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 7; 82pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; (ilarity 100.0%; (Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                             97US-00841349.
98WO-US008656.
99US-00431184.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RRQQEEEERKRRPSPDPNTKVSEEAESQQWDTSKGDQVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 220; DB 7; 1
Pred. No. 4.7e-208;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
```

```
RRESULT 3
AAW816400
ID AAW87
XX AAW87
XX AAW87
XX AAW87
XX MOUS
XX MOUS
XX Elf-
XW Choll
XX Prim
XX MO99
XX MUS
XX MO99
XX MO99-
PF 30-P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention provides novel early liver developmental proteins such as elf (embryonic liver fodrin or beta spectrin) 1-3, liyor-1 (145), pk, protein 106 and praja-1 and nucleic acid molecules encoding such proteins. Other genes coding for early liver developmental proteins include genes 20, 36, 41, 112, 114, 118 and 129. Polynucleotides of the invention are useful for treating diseases chosen from end stage liver disease, hepatocellular carcinoma, anhidrotic ectoderm dysplasia, degenerative neurological disorders, anaemia, ataxia, hemochromatosis, sideroblastic anaemia and spinocerebellar ataxia, hemochromatosis, sideroblastic anaemia and spinocerebellar ataxia, elf sequences are useful for treating liver disorders chosen from cholestasis, biliary stones, liver obstruction, stricture, primary biliary cirrhosis and primary sclerosing cholangitis, praja-1 sequences are useful for detecting colon cancer. The present sequence is mouse early liver
                   30-APR-1998;
                                                 05-NOV-1998.
                                                                                                                                                 primary biliary cirrhosis; primary sclerosing cholangitis; therapy.
                                                                                                                                                                 Elf-3; mouse; liver development; signal transduction; biliary tree;
cholestasis; biliary stone; hepatic obstruction; stricture;
                                                                                                                                                                                                                  Mouse elf-3 protein
                                                                                                                                                                                                                                                     01-MAR-1999
                                                                                                                                                                                                                                                                                    AAW81640;
                                                                                                                                                                                                                                                                                                                      AAW81640 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                developmental protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel isolated early liver developmental proteins such as elf, liyor-1 (145), pk, protein 106 and praja-1, useful for treating end stage lived disease, hepatocellular carcinoma, anemia and ataxia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                             QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSHDIVDGNHRLTTLELLEVRRQQEEEERKKRPPSPDPNTKVSEEAESQQWDTSKGDQVS
                                                                                                                                                                                                                                                                                                                                                                                                      QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSHDIVDGNHRLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A,
                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲
                   98WO-US008656.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85pp; English
                                                                                                                                                                                                                                                                                                                      220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 220; DB 8; I
Pred. No. 4.7e-208;
                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 220;
                                                                                                                                                                                                                                                                                                                                                                                                                                      220
                                                                                                                                                                                                                                                                                                                                                                                                      220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 4
ADF13682
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This is the amino acid sequence of the elf-3 protein of the foetal murine liver. The invention provides early developing liver proteins (see AAW81638-42) and the genes coding for them (see AAV64410-24). The genes were isolated from embryonic cDNA libraries using subtractive hybridisation. 3 Elf genes (see AAV64411-13) were identified. The elf proteins (see also AAW81639) are probably important for the formation of the biliary tree during early liver development. They are used in a claimed method to treat cholestasis, biliary stones, liver obstruction, stricture, primary biliary cirrhosis and prolair stones, cholangitis. Early developing liver proteins and nucleic acids can also be used in the diagnosis of liver diseases and other disorders, including those relating to oncogenesis and tissue repair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New isolated early liver development genes - used to develop products treating, e.g. liver disease, hepatocellular carcinoma, degenerative neurological disorders, anaemia, ataxia or haemochromatosis.
                                                                                                                             04-DEC-2003.
                                                                                                                                                                                                              Gene therapy;
                                                                                                                                                                                                                                                                                                       ADF13682;
                                                                                                                                                                                                                                                                                                                                 ADF13682 standard; protein; 1022 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 9; Fig 2c; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-009382/01
N-PSDB; AAV64413.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-APR-1997;
                                                                   20-MAY-2002; 2002US-0381899P
                                                                                                20-MAY-2003;
                                                                                                                                                       WO2003100426-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (MISH/) MISHRA L.
                        (UYWR-) UNIV WRIGH
(UYYA ) UNIV YALE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129;
                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFXQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  220
                                                                                                                                                                                                                                                                                                                                                                                                                                        GSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                            GSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MELORTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                           ΙΙ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                       WRIGHT STATE
                                                                                                2003WO-US016103
                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                              Sjogren's Syndrome; beta II spectrin
                                                                                                                                                                                                                                          spectrin amino acid sequence #SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97US-00841349.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58.6%; Score 129; DB 2; L
100.0%; Pred. No. 2.2e-118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 220,
                                                                                                                                                                                                                                             IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
```

Brown

Į,

Morrow JS

WPI; 200 N-PSDB;

2004-062080/06

ADF13681

```
RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ક
 ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to a method for identifying primary and secondary Sjogren's Syndrome, or a susceptibility to developing primary and secondary Sjogren's Syndrome. The method comprises obtaining a biological sample from the subject, contacting the sample with a purified target antigen, where the target antigen is an epitope of beta II spectrin and detecting the presence of autoantibodies in the sample which bind to the target antigen. The method is useful for identifying primary and secondary Sjogren's Syndrome or susceptibility to developing primary and secondary Sjogren's Syndrome, and for treating or delaying the pathological effects of primary and secondary Sjogren's Syndrome. The current sequence represents the mouse beta II spectrin amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Identifying primary and secondary Sjogren's Syndrome or susceptibility to developing the disease by contacting the sample with a target antigen and detecting the presence of autoantibodies in the sample that bind to the
                                                                                                                                                                                                                                                   Elf-1; mouse; liver development; signal transduction; biliary tree;
cholestasis; biliary stone; hepatic obstruction; stricture;
                                                                                                                                                                                                                                                                                                                                                                                AAW81639 standard;
                                                                                                                                                                                                              Mus
                                                                                                                                                                                                                                                                                                                          01-MAR-1999
N-PSDB; AAV64411
                                                                                                                                                                                                                                                                                             Mouse elf-1 protein
              WPI; 1999-009382/01.
                                          Mishra
                                                                     (MISH/) MISHRA
                                                                                                                           30-APR-1998;
                                                                                                                                                       05-NOV-1998.
                                                                                                                                                                                 WO9848827-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                     130 HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ч
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                      biliary cirrhosis; primary sclerosing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              $
                                                                     r
                                                                                                97US-00841349
                                                                                                                           98WO-US008656.
                                                                                                                                                                                                                                                                                                                                                                                protein; 2154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; 40pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 124; DB 8;
Pred. No. 7e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                         cholangitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
This is the amino acid sequence of the elf-1 protein of the developing murine foetal liver. The invention provides early developing liver proteins (see AAW81638-42) and the genes coding for them (see AAV64410-24). The genes were isolated from embryonic cDNA libraries using subtractive hybridisation. 3 Elf genes (see AAV64411-13) were identified. The elf proteins (see also AAW81640) are probably important for the formation of the biliary tree during early liver development. They are used in a claimed method to treat cholestasis, biliary stones, liver obstruction, stricture, primary biliary circhosis and primary sclerosing cholangitis. Barly developing liver proteins and nucleic acids can also be used in the disgnosis of liver diseases and other disorders, including those relating to oncogenesis and tissue repair
                                                                                                                                                                                                                                                                                                                                                                                                                                     New isolated early liver development genes - used to develop treating, e.g. liver disease, hepatocellular carcinoma, deger neurological disorders, anaemia, ataxia or haemochromatosis.
Sequence
                                                                                                                                                                                                                                                                                                                                                                                       Claim 9; Fig 2a; 92pp; English.
  2154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        degenerative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   products for
```

```
밁
                  Ś
                                            밁
                                                               Ś
                                                                                         밁
                                                                                                          S
                                                                                                                                      Query Match
Best Local Similarity
Matches 124; Conserv
130
                    130
                                                                   70
                                                                                          10
                                            70
                                                                                                                  10
                                                          RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN 129
                                                                                                      SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
HRLT
                      HRLT 133
                                            RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                         SGPLSPAYTGOVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                         Conservative
                                                                                                                                                 56.4%;
                                                                                                                                        0,
                                                                                                                                      Score 124; DB 2; L
Pred. No. 1.3e-112;
0; Mismatches 0;
                                                                                                                                                              Length 2154;
                                                                                                                                          Indels
                                                                                                                                          0
                                                                                                                                         Gaps
                                                                                              69
                                                                                                                    69
```

```
Murine elf-1 protein used to treat end stage liver disease.
                                                                             ADF74491;
                                                                                                                 ADF74491
                                                                                                                 standard;
                                        (first entry)
                                                                                                                protein;
```

RESULT 6
ADF744911
IID ADF7
XX ADF7
XX ADF7
XX ADF7
XX ADF7
XX Muri
XX Muri
XX Muri
XX Muri
XX Muri
XX Dilyo
XX Dilyo
XX Ineux
XX murine; mouse; early liver development; end stage liver disease; elf 1-3; liyor-1 (145); pk; protein 106; praja-1; hepatocyte lineage; cholestasis; biliary stone; hepatic obstruction; stricture; primary biliary cirrhosis; primary sclerosing cholangitis; gene therapy; anhidrotic ectoderm dysplasia; hepatocellular carcinoma; anaemia; ataxia; Mus musculus 30-APR-1997; 30-APR-1998; 01-NOV-1999; neurological disorder; haemochromatosis; hepatotropic; cytostatic 04-NOV-2003. neuroprotective; antianaemic; cardiant (MISH/) MISHRA 97US-00841349. 98WO-US008656. 99US-00431184.

WPI; 2003-851362/79

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                            Early liver developmental protein; liver disease;
hepatocellular carcinoma; anhidrotic ectoderm dysplasia;
hepatocellular carcinoma; anhidrotic ectoderm dysplasia;
degenerative neurological disorder; anaemia; ataxia; haemochromatosis;
sideroblastic anaemia; spinocerebellar ataxia; cholestasis;
biliary stone; liver obstruction; stricture; primary biliary cirrhosis;
primary selerosing cholangitis; colon cancer; therapy; mouse; elf-1;
embryonic liver fodrin; beta spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention relates to novel genes and encoded proteins thereof, isolated during early liver development that are useful in the diagnos and treatment of end stage liver disease and other disorders. Specifically, it refers to genes that encode proteins such as elf 1-3, liyor-1 (145), pk, protein 106 and praja-1. The present invention describes the characterisation of these early liver development protein and also methods to raise peptide specific antibodies that are useful anarkers, as well as for tracing hepatocyte lineage. Furthermore, elf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   proteins 1-3 are useful in treating disorders including cholestasis, bilary stones, hepatic obstruction, stricture, primary biliary cirrhosis or primary sclerosing cholangitis. In addition, through using gene therapy, praja-1, liyor-1 (145) and pk can be used to treat anhidrotic ectoderm dysplasia, hepatocellular carcinoma and other diseases including anaemia, ataxia, degenerative neurological disorders and haemochromatosis. Accordingly, these proteins can be described as hepatotropic, cytostatic, neuroprotective, antianaemic and cardiant. This polypeptide sequence is the murine elf-1 protein of the invention.
30-APR-1997;
                                 30-OCT-2003; 2003US-00695994.
                                                                                                         US2004142354-A1.
                                                                                                                                            Mus musculus
                                                                                                                                                                                                                                                                                                                           Mouse elf-1
                                                                                                                                                                                                                                                                                                                                                               07-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                 ADQ88363 standard; protein; 2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New antibodies recognizing early liver development proteins, useful as markers, in identifying peptides and proteins having early liver development characteristics, tracing hepatocyte lineage or treating liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB; ADF74490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124; · Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                           protein.
                                                                                                                                                                                                                                                                                                                                                             (first
97US-00841349
                                                                                                                                                                                                                                                                                                                                                             entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56.4%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 124; DB 7; L; Pred. No. 1.3e-112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       proteins, useful as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention provides novel early liver developmental proteins such as elf (embryonic liver fodrin or beta spectrin) 1-3, liyor-1 (145), pk, protein 106 and praja-1 and nucleic acid molecules encoding such proteins. Other genes coding for early liver developmental proteins include genes 20, 36, 41, 112, 114, 118 and 129. Polynucleotides of the invention are useful for treating diseases chosen from end stage liver disease, hepatocellular carcinoma, anhidrotic ectoderm dysplasia, degenerative neurological disorders, anaemia, ataxia, haemochromatosis, sideroblastic anaemia and spinocerebellar ataxia. elf sequences are useful for treating liver disorders chosen from cholestasis, billary stones, liver obstruction, stricture, primary biliary cirrhosis and primary sclerosing cholangitis. praja-1 sequences are useful for
                                                                                                                                                                                                      Full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; SEQ ID NO 4; 85pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel isolated early liver developmental proteins such as elf, (145), pk, protein 106 and praja-1, useful for treating end st disease, hepatocellular carcinoma, anemia and ataxia.
                           19-MAR-2004; 2004US-00805684.
                                                                                       US2005100966-A1
                                                                                                                  Mus musculus
                                                                                                                                               cardiovascular
                                                                                                                                                                         FHOS; antiinflammatory; neuroprotective; cytostatic; cardiovascular-Gen.;
                                                                                                                                                                                                                                     14-JUL-2005
                                                                                                                                                                                                                                                                                             ADZ85101 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    detecting colon cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; ADQ88362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2004-552558/53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-APR-1998;
01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                                                                                                                                  130
                                                                                                                                                                                                                                                                                                                                                                                                                               70
                                                                                                                                                                                                                                                                                                                                                                                                                                                           70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                 HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                           RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                     HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                               RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                     FHOS interacting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein.
                                                                                                                                                              inflammation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲
                                                                                                                                               disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98WO-US008656.
99US-00431184.
                                                                                                                                                                                                                                                                                            protein; 2154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56.4%;
100.0%;
                                                                                                                                              ion; neurodegenerative disease; cancer;
diabetes mellitus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present sequence is mouse early liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 124; DB 8; L
Pred. No. 1.3e-112;
                                                                                                                                                                                                     protein, SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                        ID 150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        liyor-1
age liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69
```

02-APR-2003; 2003US-0459936P

```
RESULT 9
ABU70467
ID ABU7047
XX ABU7047
XX ABU7
XX ABU7
XX
DT 10-J
DT 10-J
XX
XX
DB Huma
XX
XX
Huma
XX
XX
Hum
XW anti
XX
XX
OS Homc
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CC or covalent bond, or any other intermolecular interaction. The invention of further comprises: a method for producing the FHOS-interaction in a sample; a method for detecting the FHOS-interacting protein; a cc method for detecting the FHOS-interacting protein in a sample; a method cc for determining whether a compound is capable of modulating an cc interaction between a first polypeptide (FHOS) or its homolog, derivative of fragments) and a second polypeptide as mentioned in the FHOS-interacting protein in cells of a specific tissue of a cc interacting protein; and a method for modulating the function or activity of the FHOS-interacting protein in cells of a specific tissue of a cc mammal. The FHOS-interacting protein has the activities:

CC antidiabetic. The FHOS-interacting protein is useful for selecting its modulators. The method for modulating the function or activity of the CC FHOS-interacting protein in cells of a specific tissue is useful for creating inflammatory diseases, neurodegenerative diseases, cancer, cardiovascular diseases or diabetes mellitus. This sequence represents an company of the contracting protein for use in the novel protein complex of the fines.
                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to a Hovel 100, derivative or fragment, protein, which is FNOS or its homolog, derivative or fragment, protein, which is endo or the homolog from a group of GROUP1, e.g. interacting with a second protein chosen from a group of GROUP1, e.g. interaction is through a complex mRNF23, mERp59 or mBRD7(627), where the interaction is through a complex mRNF23, mERp59 or mBRD7(627), where the interaction. The invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; SEQ ID NO 150; 163pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel isolated protein comprising FHOS or its homolog, derivative or fragment, interacting with proteins chosen from group of GROUP1 e.g. mRNF23, mERp59 or mBRD7(627), useful for screening its modulator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2005-345401/35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sakamoto T, Takeda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-APR-2003;
03-JUN-2003;
                                                                                Human; prey; adipocyte; SID; selected interacting domain; anorectic; antidiabetic; protein-protein interaction; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SAKA/)
                     Homo sapiens
                                                           yeast
                                                                                                                                            Human
                                                                                                                                                                                    10-JUN-2003
                                                                                                                                                                                                                                                                     ABU70467 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       invention relates to a novel isolated protein comprising a first tein, which is FHOS or its homolog, derivative or fragment,
                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                           2-hybrid assay;
                                                                                                                                          adipocyte Selected Interacting domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                        70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SAKAMOTO T. TAKEDA S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                             HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                         HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                        RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2003US-0460103P.
2003US-0455766P.
                                                                                                                                                                                    (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56.4%;
                                                               metabolic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 124; DB 9; Li
; Pred. No. 1.3e-112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                            SID,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                              #98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

RESULT 10
ABU70517
ID ABU70
XX
AC ABU70
AC ABU70
DT 10-JU
XX
XX
DE Human
XX
KW Human

10-JUN-2003

(first entry)

ABU70517 standard;

protein; 341 AA

Human adipocyte Selected Interacting domain, SID, #148
Human; prey; adipocyte; SID; selected interacting doma:
antidiabetic; protein-protein interaction; diabetes;

anorectic;

```
The invention relates to a complex between two interacting proteins in CC adipocyte cells, given in the specification. The proteins are identified by selecting a bait protein from a known adipocyte marker and then CC performing a yeast 2-hybrid selection to isolate prey proteins encoded by electring an adipocyte cDNA library. The proteins are designated SID CC (RTM) (selected interacting domains) proteins. Also included are a CC polynucleotide encoding a polypeptide in the adipocyte cells, a CC recombinant host cell expressing at least one of the interacting CC polyneptides of the complex, selecting a modulating compound in adipocyte cells, a SID (RTM)) polyneptide comprising any of the 738 mucleotide sequences given in the specification (including its fragment or variant), a SID (RTM) polynucleotide comprising any of the 738 mucleotide sequences (cc given in the specification (including its fragment or variant), a vector comprising the vector, a protein chip comprising the polypeptides, a protein chip comprising the polypeptides are useful for record comprising all or part of the data, listed in the specification. CC preventing or treating metabolic disorders such as obesity or diabetes. The polynucleotides are useful for graticularly useful for identifying selected interacting domains (SID (RTM)) for screening drugs that modulate the protein interaction, thus complising of the invention.
                            S
                                                                     문
                                                                                                        á
                                                                                                                                              Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New complex between two interacting proteins in adipocyte cells, useful for identifying selected interacting domains that modulate protein interactions, or for preventing or treating metabolic disorders such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-MAR-2002; 2002WO-EP003768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 6; Page 144; 382pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  obesity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-MAR-2001; 2001US-0275734P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200286122-A2
                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HYBR-) HYBRIGENICS.
                                                                                                                                                                                                                                                           (prey) protein of
                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-103412/09.
DB; ACA57011.
                                    97
                                                                       23
                                                                                                          37
                                                                                                                                                97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or diabetes.
                                                                                                                                                                                                                          321
                   DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                          DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR 96
IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Daviet L;
                                                                                                                                                  Conservative
                                                                                                                                                                                                                          A
N
                                                                                                                                                                                                                                                              the invention
                                                                                                                                                                  44.1%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           English.
                                                                                                                                              Score 97; DB ; Pred. No. 1.1:
0; Mismatches
                                                                                                                                                  0
                                                                                                                                                                                     DB 6;
                                                                                                                                                                      1.1e-86
                                                                                                                                                                                     Length 321
                                                                                                                                                    Indels
                                                                                                                                                    <u>..</u>
                                                                                                                                                  Gaps
```

```
RESULT 11
ADJ70625
ID ADJ70
XX
AC ADJ70
XX
AC ADJ70
XX
AX
XX
DT 06-MA
                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                CC by selecting a bait protein from a known adipocyte marker and then a performing a yeast 2-hybrid selection to isolate prey proteins encoded by CC members of an adipocyte cDNA library. The proteins are designated SID CC (RTM) (selected interacting domains) proteins. Also included are a CC polynucleotide encoding a polypeptide in the adipocyte cells, a CC recombinant host cell expressing at least one of the interacting CC polypeptides of the complex, selecting a modulating compound in adipocyte cells, a SID (RTM)) polypeptide comprising any of the 738 maino acid CC sequences given in the specification (including its fragment or variant), a vector CC comprising the SID (RTM) polynucleotide, a recombinant host cell CC comprising the specification (including its fragment or variant), a vector CC comprising the vector, a protein chip comprising the polypeptides and a CC comprising the vector, a protein chip comprising the polypeptides and compounds are useful for Dreventing or treating metabolic disorders such as obseity or diabetes. CC particularly useful as probes or primers. The comains (SID CRTM)) for screening drugs that modulate the protein interaction, thus CC exhibiting the therapeutic effect. The present sequence represents a SID CC preventing of the invantion
                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                  Query Match
                   06-MAY-2004
                                                     ADJ70625;
                                                                                       ADJ70625 standard; protein; 1630 AA
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to a complex between two interacting proteins adipocyte cells, given in the specification. The proteins are identi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 6; Page 156-157; 382pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New complex between two interacting proteins in adipocyte cells, useful for identifying selected interacting domains that modulate protein interactions, or for preventing or treating metabolic disorders such as obesity or diabetes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-MAR-2001; 2001US-0275734P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14-MAR-2002; 2002WO-EP003768.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200286122-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  yeast 2-hybrid assay; metabolic disorder; obesity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Legrain P, Daviet L;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HYBR-) HYBRIGENICS
                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2003-103412/09
                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                           37
                                                                                                                                                                                 99
                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                          protein of the invention
                                                                                                                                                                                                                                                                                                                                l Similarity
97; Conserv
                                                                                                                                                                                                                                                                            DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                 IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                       DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                Conservative
                 (first entry)
                                                                                                                                                                                                                                                                                                                                               44.1%; Score 97; DB 6; L
100.0%; Pred. No. 1.1e-86;
                                                                                                                                                                                                                                                                                                                                <u>,</u>
                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                 135
                                                                                                                                                                                                                                                                                                                                                                Length 341;
                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                identified
                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                       98
                                                                                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                                              0
```

```
RESULT 12
ABP65068
ID ABP65
XX
AC ABP65
                                                                                                                                                  Ś
                                                                                                                                                                                      맑
                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                              can be used in the treatment of various diseases associated with altered mitochondrial function including diabetes mellitus, Huntington's disease, osteoarthritis, Leber's hereditary optic neuropathy (LHON), mitochondrial encephalopathy lactic acidosis and stroke (MELAS), myoclonic epilepsy ragged red fibre syndrome (MERRF) or cancer. Accordingly, these compositions have neuroprotective, nootropic, antidiabetic, antiarthritic, osteopathic, ophthalmological and cytostatic activities. This polypeptide sequence is a human heart mitochondrial protein of the invention.
 ABP65068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for therapeutic intervention in treating a disease associated with altered mitochondrial function. Specifically, it refers to a method for identifying proteins of the human heart mitochondrial proteome that are useful for drug screening assays, as well as therapeutic targets. The present invention describes a method for identifying such proteins that
                                ABP65068 standard; protein; 2364 AA
                                                                                                                                                                                                                                                                                                                                Sequence 1630 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Identifying a mitochondrial target for drug screening assays and for treating diseases associated with altered mitochondrial function, comprises detecting a modified polypeptide in a sample and correlating with the disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-APR-2002; 2002US-0372843P.
17-JUN-2002; 2002US-0389987P.
20-SEP-2002; 2002US-0412418P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         myoclonic epilepsy ragged red fibre syndrome; neuroprotective; nootropic; antidiabetic; ant osteopathic; ophthalmological; cytostatic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mitochondrial; human; screening assay; diabetes mellitus;
Huntington's disease; osteoarthritis;
Leber's hereditary optic neuropathy; LHON:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; SEQ ID NO 2431; 180pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2003-845369/78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-APR-2003; 2003WO-US010870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO2003087768-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Leber's hereditary optic neuropathy; LHON; mitochondrial encephalopathy lactic acidosis and stroke; MELAS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human heat mitochondrial protein as a therapeutic target SeqID2431.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This invention relates to novel mitochondrial targets that can be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BUCK-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (MITO-) MITOKOR
                                                                                                                                                                                                                                                                               Local
                                                                                                                       110
                                                                                                                                                      97
                                                                                                                                                                                        50
                                                                                                                                                                                                                          37
                                                                                                                                                                                                                                                             97;
                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BUCK INST AGE RES.
                                                                                                                                                                                                          DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                           IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                        DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fahy ED,
                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                             44.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽,
                                                                                                                                                                                                                                                                           Score 97; DB 7; Lt; Pred. No. 4.2e-86;
                                                                                                                                                                                                                                                             <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gibson BW,
                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           anticonvulsant; antiarthritic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Taylor SW,
                                                                                                                                                                                                                                                                                            Length 1630;
                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Glenn GM;
                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                          96
                                                                                                                                                                                        109
```

```
밁
                            δ
                                                                 밁
                                                                                                Ś
                                                                                                                                                                                                                              Cr The present invention relates to methods for identifying genes and condition. The method comprises comparing the transcriptome/proteome of a specialised cell type implicated in a disease or condition with that of a cr second specialised cell type, under two experimental conditions, and cr identifying a gene that is differentially regulated in the two continues. The coding sequences and proteins are useful for treating a disease in a specialised cell types under experimental conditions. ABV7873-ABV78116 cand ABP65061-ABP65257 were identified using the methods of the invention. The coding sequences and proteins are useful for treating a disease in a conditions, and for regulating tender experiment for treating hypoxia-regulated conditions, and for regulating tunourigenesis, angiogenesis, apoptosis, conditions, and for regulating tunourigenesis, and proteins are also useful condition, such as cancer, ischaemic conditions, reperfusion injury, cretinopathy, neonatal stress, preeclapmsia, atherosclerosis, inflammatory conditions, wound healing, inflammation, erythropoiesis or hair loss
                                                                                                                                 Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        White J, Rayner WN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-DEC-2000; 2000GB-00030076.
08-FEB-2001; 2001GB-00003156.
25-OCT-2001; 2001GB-00025666.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypoxia; tumourigenesis; angiogenesis; apoptosis; cancer; ischaemic condition; reperfusion injury; retinopathy; neonatal stress; presclapmaia; atherosclerosis; inflammatory condition; wound healing; inflammation; erythropoiesis; hair loss; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cytostatic; vasotropic; tranquiliser; antiatherosclerotic; gene therapy; antiinflammatory; vulnerary; gynecological; ophthalmological; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-DEC-2001; 2001WO-GB005458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200246465-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 13; Page 271-272; 538pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 types under different conditions and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-627238/67.
                                                                                                                                                                                                     Sequence 2364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Identifying a gene involved in disease for treating hypoxia-regulated conditions, comprises comparing the transcriptome/proteome of two cel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (OXFO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sapiens
110
                                97
                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OXFORD
                                                                                                                                                   Similarity
                                                                                     DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146
                        IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                 DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mundy CR,
                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                       A
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BIOMEDICA UK LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ward NR,
                                                                                                                                                   44.1%;
100.0%;
                                                                                                                                 0
                                                                                                                                                   Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Krige D,
                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   identifying a differentially
                                                                                                                                                   5 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kingsman SM.
                                                                                                                                                     .8e-86;
                                                                                                                                                                   5
                                                                                                                                   ٥,
                                                                                                                                                                   Length 2364;
                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Harris
                                                                                                                                   ٥,
                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cell
                                                                   109
```

RESULT 13 ABM80299

& B S

50 97

IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133

```
The invention relates to human tumour-associated antigenic target (TAT) coplypeptides, and their related nucleic acids. The TAT polypeptides are coverexpressed in cancer tissues compared to normal tissues, and may thus coverexpressed in cancer tissues compared to normal tissues, and may thus can expensed as effective targets for the diagnosis and treatment of cancer in commands. The invention also relates to nucleic acid and polypeptide compared to the TAT nucleic acids and polypeptides; expression vectors and host cells comprising a TAT nucleic complexity an antibody specific for a TAT polypeptide; a peptide or organic concervity and methods and compositions for the treatment or compared to the diagnosis of cancer in mammals. TAT polypeptides, nucleic acids, composis of cancer in mammals. TAT polypeptides, nucleic acids, concersed TAT expression, particularly cancers such as breast cancer, colorectal cancer, lung cancer, ovarian cancer, liver cancer, bladder concers, pancreatic cancer, cervical cancer, cancers of the central concers, pancreatic cancer, cervical cancer, cancers of the central concers system, melanoma and leukaemia. TAT nucleic acids may further be cused as hybridisation probes, in chromosome and gene mapping, in composents a TAT polypeptide of the invention.
   Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumour-associated antigenic target; TAT; human; overexpression; continuour; diagnosis; cell proliferative disorder; breast cancer; colorectal cancer; lung cancer; ovarian cancer; liver cancer; central nervous system cancer; bladder cancer; pancreatic cancer; cervical cancer; melanoma; leukaemia; hybridisation probe; chromosome identification; chromosome mapping; gene mapping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2004-347921/32.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wu TD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 12; SEQ ID NO 747; 7273pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           prostate cancer or tumor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            useful in preparing a medicament for treating or detecting a proliferative disorder, e.g. breast, lung, colorectal, ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New tumor-associated antigenic target polypeptides and nucleic acids,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-OCT-2002; 2002US-0414971P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-SEP-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-APR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO2004030615-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumour-associated antigenic target (TAT) polypeptide PRO58543, SEQ:747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-NOV-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABM80299 standard; protein; 2364 AA
                                                                            Sequence 2364 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GETH )
         97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENENTECH
                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2003WO-US028547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cytostatic.
44.1%; ~
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ĸ
     Score 97; DB; Pred. No. 5.8
                      DB 8; Le
         0
                                          Length 2364;
         Indels
         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cancer;
         Gaps
```

밁

110

IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146

```
S
                                  망
                                                                       8
                                                                                                                  Matches
                                                                                                                                                       Query Match
                                                                                                                                                                                                                                               treatment of lung cancer and an array for distinguishing between normal and disease tissues (comprising 2 or more probes corresponding to 2 or more genes selected from any of the 200 nucleotide sequences given in the specification, or 2 or more polypeptides comprising any of the 200 amino acid sequences given in the specification). In providing a patient diagnosis for lung cancer, one or more genes are selected from any of the 200 nucleotide sequences as mentioned in the specification, or one or more gene producte are polypeptides selected from any of the 200 nucleotide sequenced in the specification. The methods are useful for detecting and treating lung cancer: These may also be used for designing, identifying and optimizing therapeutics for cancer. The present sequence represents a protein from one of the 200 lung cancer marker genes. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Also included are distinguishing between normal and disease tissues, monitoring the response of a patient being treated for lung cancer by administering an anti-cancer agent, identifying a compound useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention relates to providing a patient diagnosis for lung comprising comparing the level of expression of genes or gene prova a biological sample from the patient with the level of expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genes or gene products in a biological sample from a normal individual. Also included are distinguishing between normal and disease tissues,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Providing a patient diagnosis for lung cancer comprises comparing the level of expression of genes or gene products in a biological sample from the patient with that from a normal individual.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human protein from lung cancer marker
                                                                                                                                                                                           Sequence 2364 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 3; SEQ ID NO 22; 60pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Taylor I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FARB ) BAYER PHARM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-OCT-2003; 2003US-0508355P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-2004; 2004WO-US034163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-APR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO2005032495-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tumor marker; lung tumor; cytostatic; neoplasm; expression;
DNA microarray.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-JUN-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADZ70337,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADZ70337 standard; protein; 2364 AA.
                                                                                                                                      Local
                                                                                                                                                                                                                                ftp.wipo.int/pub/published_pct_sequences.
  97
                                                                           37
                                                                                                                                      Similarity
IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                         DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR 96
                                    DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pauloski NR,
                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                              44.1%; Score 97;
100.0%; Pred. No.
tive 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bigwood
                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene SPTBN1.
                                                                                                                                  DB 9; L
                                                                                                                  ..
                                                                                                                                                   Length 2364;
                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                useful for the
                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                products
                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in
```

RESULT 16 ADJ70287 ID ADJ70

ADJ70287 standard; protein; 2106 AA

```
RESULT 15
AAW81642
                                                                                                                                                                                            S
                                                             밁
밁
                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                               Matches
                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                   invention provides early developing liver proteins (see AAW81638-42) and the genes coding for them (see AAV64410-24). The genes were isolated from embryonic cDNA libraries using subtractive hybridisation. 3 Elf genes (see AAV64411-13) were identified. The elf proteins (see also AAW81639-40) are probably important for the formation of the biliary tree during early liver development. They are used in a claimed method to treat cholestasis, biliary stones, liver obstruction, stricture, primary biliary cirrhosts and primary sclerosing cholangitis. Barly developing liver proteins and nucleic acids can also be used in the diagnosis of inver diseases and other disorders, including those relating to
                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Elf; mouse; liver development; signal transduction; biliary tree;
cholestasis; biliary stone; hepatic obstruction; stricture;
primary biliary cirrhosis; primary sclerosing cholangitis; therapy.
                                                                                                                                                                                                                                                                                                                                                                                                         This is the amino acid sequence of an elf protein of the foetal murine liver, as deduced from an isolated partial cDNA clone (see AAV64424).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        treating, e.g. liver disease, hepatocellular carcinoma, deguneurological disorders, anaemia, ataxia or haemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9848827-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mouse elf protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW81642
                                                                                                                                                                                                                           oncogenesis and tissue repair
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 2; Fig 16a; 92pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-PSDB; AAV64424.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1999-009382/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW81642 standard; protein; 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New isolated early liver development genes - used to develop products for treating, e.g. liver disease, hepatocellular carcinoma, degenerative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MISH/) MISHRA
                                                              1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
                              191
                                                                                                                             90;
                                                                                                                                            Similarity
                  PRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                 RITTLELLEVRROQEEEERKRRPPSPDPNTKVSEEAESQOWDTSKGDQVSQNGLPAEQGS 190
                                                              RLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLPAEQGS 1090
                                                                                                                                                                                            1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146
PRVSYRSQTYQNYKNFNSRRTASDHSWSGM 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                            A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-00841349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-US008656
                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           English.
                                                                                                                           <u>,</u>
                                                                                                                                           Score 90;
Pred. No.
                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                           DB 2; Li
2.4e-79;
                              220
                                                                                                                           0,
                                                                                                                                                          Length 1120;
                                                                                                                             Indels
                                                                                                                           o
;
                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                         The
                                                                                                                           0
```

```
ADX06608
ID ADX(
XX
                                                                                                                                                                                                                                         RESULT 17
                                                                                                     밁
                                                                                                                                   ঠ
                                                                                                                                                                      Matches
                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                     for therapeutic intervention in treating a disease associated with altered mitochondrial function. Specifically, it refers to a method for identifying proteins of the human heart mitochondrial proteome that are useful for drug screening assays, as well as therapeutic targets. The present invention describes a method for identifying such proteins that can be used in the treatment of various diseases associated with altered mitochondrial function including diabetes mellitus, Huntington's disease, osteoarthritis, Leber's hereditary optic neuropathy (LHON), mitochondrial encephalopathy lactic acidosis and stroke (MELAS), myoclonic epilepsy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-APR-2002; 2002US-0372843P
17-JUN-2002; 2002US-0389987P
20-SEP-2002; 2002US-0412418P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-2003; 2003WO-US010870.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO2003087768-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  myoclonic epilepsy ragged red fibre syndrome; MERRF; cancer;
neuroprotective; nootropic; antidiabetic; anticonvulsant; antiarthritic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mitochondrial encephalopathy lactic acidosis and stroke; MELAS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mitochondrial; human; screening assay; diabetes mellitus; Huntington's disease; osteoarthritis; Leber's hereditary optic neuropath; LHON; mitochondrial accessions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human heat mitochondrial protein as a therapeutic target SeqID2093.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-MAY-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADJ70287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Identifying a mitochondrial target for drug screening assays and for treating diseases associated with altered mitochondrial function, comprises detecting a modified polypeptide in a sample and correlating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2003-845369/78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ghosh SS,
                                                                                                                                                                                                                                        Sequence 2106 AA;
                                                                                                                                                                                                                                                                                      ragged red fibre syndrome (MERRF) or cancer. Accordingly, these compositions have neuroprotective, nootropic, antidiabetic, compositions have neuroprotective, osteopathic, ophthalmological and anticonvulsant, antiarthritic, osteopathic, ophthalmological and cytostatic activities. This polypeptide sequence is a human heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention relates to novel mitochondrial targets that can be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; SEQ ID NO 2093; 180pp; English.
                 ADX06608 standard;
                                                                                                                                                                                                                                                                      mitochondrial protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MITO-) MITOKOR.
(BUCK-) BUCK INST AGE
                                                                                                                    95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                      38;
                                                                                                                                                                                        Similarity
                                                                                                   MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fahy ED,
                                                                                                                                                                    17.3%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ophthalmological; cytostatic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
               protein; 2137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RES.
                                                                                                                                                                                                                                                                           the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                      <u>,,</u>
                                                                                                                                                                                        Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gibson BW,
                                                                                                                                                                      Mismatches
                                                                                                                                                                                    DB 7; Lo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Taylor SW,
                                                                                                                                                                                                      Length 2106;
                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glenn
                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          £
                                                                                                                                                                      Gaps
                                                                                                                                                                      0,
```

```
RESULT 18
ABR41636
ID ABR41
                                                                                                                                                                                                                                                                                                                                                             ZXEXEXEX
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                    CC 2774 biomarkers given in the specification (nuclectide sequence SEQ ID CC NO:1246 (Genbank EST W28729) is especially preferred). The method of the CC invention is utilized in a kit for determining or predicting whether CC patient would be susceptible or resistant to treatment by an agent CC qualing individualized genetic profiles for treatment describes a method for CC utilizing individualized genetic profiles for treating diseases and CC disorders based on patient's response and molecular level, specialized CC microarrays comprising the biomarkers and molecular level, specialized CC against the biomarkers and a cell culture model to identify biomarkers. CC The cdk modulator is preferably N-5-[[5-(1,1-Dimethylethyl)-2-CC oxazolyl]methyl]thio]-2-thiazolyl-4-piperidine carboxamide, 0.5-L-CC tartaric acid salt. Note: The sequence data for this patent did not form CC part of the printed specification, but was obtained in electronic format CC directly from WIPO at ftp.wipo.int/pub/published_pct_sequences. This cC sequence represents a biomarker used in the method of the invention.
                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This invention describes a novel method of predicting or determining whether a mammal will respond or is responding to an anti-cancer agent that modulates cyclin-dependent kinase (cdk) activity. The method comprises measuring the level of one or more biomarkers selected from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biomarkers useful for predicting to a cancer treatment comprising dependent kinase activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cyclin-dependent kinase modulation biomarker SEQ ID NO 1173
                                                                                                                                                                                                                                                                                                                                                       Sequence 2137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 5; SEQ ID NO 1173; 141pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-JUL-2003; 2003US-0490890P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-JUL-2004; 2004WO-US024424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2005012875-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADX06608;
                                Human DITHP cytoskeletal protein.
                                                                 02-JUN-2003
                                                                                                                                     ABR41636 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BRIM ) BRISTOL-MYERS SQUIBB CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2005-163068/17.
                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                       95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                                                                                                                                         38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rupnow BA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADX06607
                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                         MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cyclin-dependent kinase; cdk; biomarker
                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                             ĀĀ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Webster KR,
                                                                                                                                     protein; 2141 AA
                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                         %; Score 38; DB
%; Pred. No. 7.4
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jackson DG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or determining the response of a mammal administration of a modulator of cyclin-
                                                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                             7.4e-28;
                                                                                                                                                                                                                                                                                                                           Length 2137;
                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                              Gape
```

Human; dithp; diagnostic and therapeutic polynucleotide; diagnosis;

cytoskeletal protein. neurological disorder; gastrointestinal disorder; transport disorder; connective tissue disorder; drug screening; proteome analysis; gene therapy; antisense therapy; genotyping; transgenic animal; knock in; disease model; toxicological testing; transcript imaging; cancer; cell inflammatory proliferative disorder; autoimmune disorder; disorder; infection; hormonal disorder; meta disorder; gastrointestinal disorder; transpo hormonal disorder; metabolic disorder;

Homo sapiens.

WO200297031-A2

05-DEC-2002.

27-MAR-2002; 2002WO-US010056.

28-MAR-2001; 29-MAR-2001; 29-MAR-2001; 16-MAY-2001; 17-MAY-2001;

17-MAY-2001; ; 2001US-0279619P. 2001US-02800667P. 2001US-0280068P. 2001US-0291280P. 2001US-0291280P. 2001US-0291829P. 2001US-0299428P. 2001US-0299428P. 2001US-029976P.

2001US-0300001P

(INCY-)

INCYTE GENOMICS INC

Dufour GE, Hillim.

Dufour GE, Hillim.

Daughtery SC, Dam T'

David M Jones AL, Tra Œ, Tran AB, Dahı ...,
JL, Yu JY, Tuason O, Yap PE,
TC, Liu TF, Nguyen DA, Kleefe
MH, Lewis SA, Chen AJ, Panzer
MH, Tan RY, Urashka ME; Gietzen D, Chinn J; O, Yap PE, Amshey SR; DA, Kleefeld Y, Gerstin AJ, Panzer SR, Harris B;

盟;

2003-129518/12. DB; ACC46573.

Novel human diagnostic and therapeutic polypeptide useful for identifying test compound which specifically binds to a polypeptide encoded by human diagnostic and therapeutic polynucleotide, and to induce antibodies.

Claim 27; SEQ ID NO 1171; 591pp; English.

The invention relates to novel human diagnostic and therapeutic collymucleotides designated dithp (ACC46080-ACC46749) and to their encoded comportains (DITHP; ABR41136-ABR41812). The invention also relates to proteins (DITHP; ABR41136-ABR41812). The invention also relates to comprising the invention also relates to polymucleotide sequences at least 90% identical to the dithp cDNA components of the invention; recombinant vectors, host cells and components production of DITHP proteins; antibodies specific for DITHP combinant production of DITHP proteins sequences; methods of detecting dithp nucleotide and protein sequences; methods of compounds which specifically bind a DITHP protein; and methods of compounds which specifically bind a DITHP protein; and methods of components which specifically bind a DITHP protein; and methods of components of a wide variety of conditions including cancer and other cell components of a wide variety of conditions including cancer and other cell components of a protein sequences and DITHP protein may be used in the component of transport conditions including cancer and other cell components; neurological disorders; pastrointestinal disorders; bacterial, viral, fungal or parasitic infections, hormonal disorders; metabolic conserted protein scan additionally be used in analysis of the proteome of a tissue of cream for modulators of protein activity or gene expression. DITHP croteins can additionally be used in analysis of the proteome of a tissue of call type and to induce antibodies. The dithp nucleic acids are considered and the conservation of individuals, in the generation of transgenic animal models of human disease or knock in the generation of transgenic animal models of human disease or knock in the generation of transgenic animal models of human disease or knock in the generation of transgenic animal models of human disease or knock in the generation of transgenic animal models of human disease or knock in the generation of transgenic animal models of human disease or knock printed specification, protein. Note: present sequence represents a DITHP protein which is a cytoskeletal tein. Note: The sequence data for this patent did not form part of the nted specification, but was obtained in electronic format directly ftp.wipo.int/pub/published _pct_sequences

RESULT 19 AAU01183 S 밁 SS Best Local S
Matches 38 Sequence 2141 Rat; glutamate transporter associated protein; GTRAP4-41; glutamate transporter protein; chloride transport; neurodegeneration; cytoskeletal stability; nervous system disorder; schizophrenia; Novel substantially pure glutamate transporter associated polypeptide which modulates intracellular glutamate transport, interacts with glutamate transport interacts with Claim 7; Fig 15; Rothstein JD, 23-OCT-1999; 99US-0161007P 22-MAY-2000; 2000US-0206157P WO200130968-A2 Misc-difference spinocerebellar ataxia type 1; SCA1; GABA metabolism Rat glutamate AAU01183 AAU01183 standard; protein; 2387 AA. N-PSDB; AAS04273 (UYJO) UNIV JOHNS HOPKINS SCHOOL MEDICINE 23-OCT-2000; 2000WO-US029431 2001-300498/31. 112 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 149 95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132 38; Similarity Conservative (first entry Jackson transporter associated protein GTRAP4-41 Location/Qualifiers 2048. .2049 116pp; English. /note= 100.0%; 17.3%; Z, "Encoded by GTAGAGAGC" Lin G, <u>.</u>. Score 38; Pred. No. Mismatches Law R, Orlov DB 6; Le 7.5e-28; 0 Length 2141; Indels 0 Gaps

interaction of a glutamate transporter protein and a GTRAP protein. A compound which modulates the activity of a glutamate transporter associated polypeptide or interaction with a glutamate transporter protein is useful for treating a disorder associated with glutamate transport or chloride flux, preferably a nervous system disorder such as neurodegeneration, spinocerabellar ataxia type 1 (SCA1), schizophrenia, epilepsy or a disorder of GABA metabolism. Such compound could be an antisense oligonucleotide (AASO4278) which can be used for modulating glutamate transport in a subject chloride transport and cytoskeletal stability. The invention also provides methods for identifying a compound that modulates a cellular response mediated by a GTRAP protein and a compound that inhibits the The present sequence representing novel rat glutamate transporter associated protein GTRAP4-41 modulates intracellular glutamate transport, interacts with a glutamate transporter protein and has an expression pattern in the brain. The GTRAP proteins are also involved in mediating

Sequence 2387

Length 2387;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY05494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                           selected integral membrane or secretory protein into a transport vehicle (for transport from the endoplasmic reticulum to the cis-Golgi apparatus, or from the cis-Golgi to the medial-Golgi apparatus, or from the emedial-Golgi to the trans-Golgi apparatus or from the trans-Golgi apparatus or from the trans-Golgi apparatus to the plasma cell membrane) using the spectrin-ankyrin-adapter protein trafficking/tethering system (AAATS). Compounds that inhibit or enhance intracellular sequestration of selected integral membrane or secretory protein into a transport vehicle are useful for ameliorating effects of disease caused by a relative excess or deficit in the amount of the particular protein. Identification, of e.g. the binding domain for CFTR (cystic fibrosis transmembrane conductance regulator) responsible for cystic fibrosis, in the spectrin-ankyrin-adapter protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY05494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY05494 standard;
                                 trafficking/tethering system (SAATS), by the methods would allow early analysis of possible transport enhancing reagents that might the clinical severity of this disease. The method does not attempt to suppress the synthesis of a given protein, only its delivery to the correct cellular tissue compartment. Intracellular expression of RNA is not required and the method lends itself to high-throughput in vitro screening assays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cis-Golgi apparatus; medial-Golgi apparatus; trans-Golgi apparatus; plasma cell membrane; cystic fibrosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BetaIII spectrin
                                                                                                                                                                                                                                                                                                                                                                             This sequence represents a mammalian betaIII spectrin. The invention relates to a method for modulating intracellular sequestration of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W09916875-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BetaIII spectrin; intracellular sequestration modulation; SAATS; spectrin-ankyrin-adapter protein trafficking/tethering system; integral membrane protein; secretory protein; endoplasmic reticulum;
Sequence 2390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           secretory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Modulating intracellular sequestration of a selected integral membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (UYYA ) UNIV YALE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1999-277085/23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87
                                                                                                                                                                                                                                                                                                                                                                                                                                    21; Fig 19e; 129pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein into a transport vehicle.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       membrane; cystic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0060559P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98WO-US020364.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12.3%; Score 27; DB 4; L
100.0%; Pred. No. 5.7e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

Query Match Best Local S Matches 27

l Similarity 27; Conserv

A K

Conservative

0;

Mismatches

0

Gaps

0

12.3%;

Score 27; DB 2; Length 2390; Pred. No. 5.7e-17;

```
RESULT 21
RABP41709
ID ABP41709
ID ABP41709
AC ABP41709
AC ABP41707
AC ABP41707
AC ABP417
AC ABP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
CC ABP43228) and to cDNAs encoding them (ABC)4131-ABC)5305), and also cc encompasses polypeptides 90% identical and polynuclectides 95% identical to the sequences of the invention. The invention additionally relates to recombinant vectors and host cells comprising human ovarian antigen and the use of ovarian antigen polynucleotides, antibodies against human ovarian antigens, and the use of ovarian antigen polynucleotides and polypeptides in diagnosing, treating, prognosing or preventing various ovary and/or breast-related disorders. Such conditions include ovarian cancer and breast cancer, and consorders (e.g., infertility, disorders of pregnancy, anovulation, and toxic polycystic ovary syndrome, ovarian cysts, and dysmenorrhoea), endocrine condistories, infections (e.g., conditions (e.g., mastitis, ophoritis and covaginitis), immune disorders (e.g., conditions (e.g., mastitis, ophoritis and covaginitis), immune disorders (e.g., congenital and acquired vaginitis), immune disorders (e.g., congenital and acquired respiratory disorders, neurological disorders, gastrointestinal disorders (e.g., anaemia), cardiovascular disorders and could and urinary system disorders. Ovarian antigen polypeptides and could condulate ovarian antigen expression or activity. The polynucleotides may also be used in screening for compounds which condulate ovarian antigen expression or activity. The polynucleotides may also be used on a conductive mapping, in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          infertility; pregnancy disorder; anovulation; polycystic ovary syndrous proces; and cyst; dysmenorrhoea; endocrine disorder; infection; proces; ovarian cyst; dysmenorrhoea; endocrine disorder; infection; inflammatory condition; immune disorder; blood disorder; cardiovascular disorder; respiratory disorder; neurological disorder; cardiovascular disorder; respiratory disorder; drug screening; gene therapy; chromosome mapping; forenet analysis; entribody preparation; cytostatic; immunomodulatory; neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Isolated nucleic acid molecules encoding novel ovarian polypeptides, useful in the prevention, treatment and diagnosis of cancer (e.g. ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ovarian cancer; breast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; ovarian antigen; ovary; ovarian; breast; cancer; tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human ovarian antigen HBODF41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABP41709 standard; protein; 806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 11; SEQ ID NO 2841; 2922pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cancer), immune disorders, cardiovascular disorders and neurological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB; ABQ54786.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-147878/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Birse CE, Rosen CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-JUN-2000; 2000US-0209467P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-JUN-2001; 2001WO-US018569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-JAN-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antiinflammatory; gynaecological; reproductive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cancer; tumour; reproductive system disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO:2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ovary syndrome;
```

á

밁

អនុស្តិន្តិនិន្តិនិង្គ

```
RESULT 22
ABB61876
  Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                              Query Match
                                                                                                                         The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from brosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins (ABB57737-ABB72072). The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIFO at ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                identification of individuals and in forensic analysis, and the polypeptides may be used as food additives or to prepare antibodies useful in disease diagnosis, drug targeting and phenotyping. The present sequence represents a human ovarian antigen of the invention. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated nucleic genes from Drosophila
                                                                                                                                                                                                                                                                                                                                                                                   Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-MAR-2001; 2001WO-US009231.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-SEP-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pharmaceutical.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila; developmental biology; cell signalling; insecticide,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster polypeptide SEQ ID NO 12420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABB61876;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABB61876 standard; protein; 2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 806 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (PEKE )
                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131 RLTTLELLEVRRQQEEEERKRRP 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23;
  l Similarity
19; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PΕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABL05979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RLTTLELLEVRROQEEEERKRRP 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORP NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Adams M,
                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10.5%; Scilarity 100.0%; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0191637P.
2000US-00614150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                 NO 12420; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
8.6%; Score 19; DB 4;
100.0%; Pred. No. 4.2e-C
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  acid
a and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PWD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  detection reagent for detecting 1000 or more for elucidating cell signaling and cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 23; DB Pred. No. 2e-0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Myers EW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 5;
2e-13;
                     4.2e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                          Length 2291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 806;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                        invention alling and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   present
                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

Conservative

Indels

0

Gaps

0,

Query Match Best Local Matches

ch 6.8%; So Similarity 100.0%; I Similarity 100.0%; I Similarity 0;

Score 15; DB; Pred. No. 4.9

DB 7; Lu. 3. 4.9e-07; 0;

Length 15; Indels

0,

Gaps

0

Sequence 15

AA;

```
RESULT
ADF7451
ID AI
. 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                             This invention relates to novel genes and encoded proteins thereof, isolated during early liver development that are useful in the diagnosis CC and treatment of end stage liver disease and other disorders. Specifically, it refers to genes that encode proteins such as elf 1-3, CC liyor-1 (145), pk, protein 106 and praja-1. The present invention CC describes the characterisation of these early liver development proteins, CC and also methods to raise peptide specific antibodies that are useful as CC markers, as well as for tracing hepatocyte lineage. Furthermore, elf CC proteins 1-3 are useful in treating disorders including cholestasis, CC billary stones, hepatic obstruction, stricture, primary biliary cirrhosis CC proteins 1-3 are useful in treating disorders including cholestasis, CC therapy, praja-1, liyor-1 (145) and pk can be used to treat anhidrotic CC ectoderm dysplasia, hepatoccellular carcinoma and other diseases including canaemia, ataxia, degenerative neurological disorders and cardiant. This companies are abstracted in from the c-terminus of the murine elf 3 protein, used to rear arbithodies of the murine elf 3 protein, used to rear arbithodies of the invention. NOTE: This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ULT 23
74518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hiliary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New antibodies recognizing early liver development proteins, useful as markers, in identifying peptides and proteins having early liver development characteristics, tracing hepatocyte lineage or treating liver
                               to raise rabbit anti-mouse antibodies of the invention. sequence differs from the murine Elf-3 peptide sequence sequence listing (SeqID 20).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       anhidrotic ectoderm dysplasia; hepatocellular carcinoma; anaemia; neurological disorder; haemochromatosis; hepatotropic; cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 2; Col 31; 82pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2003-851362/79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mishra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-APR-1997;
30-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US6642362-B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   primary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         murine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptide from the C-terminus of the murine elf 3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADF74518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADF74518 standard; peptide; 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mouse; early liver development; end stage liver disease; elf 1-3; (145); pk; protein 106; praja-1; hepatocyte lineage; cholestasis; stone; hepatic obstruction; stricture; primary biliary cirrhosis; sclerosing cholangitis; gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LIKLLEVLSGERLPKPTKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LIKLLEVLSGERLPKPTKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-00841349.
98WO-US008656.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-00431184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       antianaemic; cardiant; antibody.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93
                                                                         NOTE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ataxia;
```

```
ARESULT 24
ADQ88396
ID ADQ88396
AC ADQ88
AC ADQ8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
밁
                                                  S
                                                                                                                    Query Match
Best Local S
Matches 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-APR-1997;
30-APR-1998;
01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Early liver developmental protein; liver disease; hepatocellular carcinoma; anhidrotic ectoderm dysplasia; hepatocellular carcinoma; anhidrotic ectoderm dysplasia; haemochromatosis; degenerative neurological disorder; anaemia; ataxia; haemochromatosis; sideroblastic anaemia; spinocerebellar ataxia; cholestasis; biliary stone; liver obstruction; stricture; primary biliary cirrhosis; biliary sclerosing cholangicis; colon cancer; therapy; mouse; elf; primary sclerosing cholangicis; colon cancer; therapy; mouse; elf;
                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention provides novel early liver developmental proteins such as elf (embryonic liver fodrin or beta spectrin) 1-3, liyor-1 (145), pk, protein 106 and praja-1 and nucleic acid molecules encoding such proteins. Other genes coding for early liver developmental proteins include genes 20, 36, 41, 112, 114, 118 and 129. Polynucleotides of the invention are useful for treating diseases chosen from end stage liver disease, hepatocellular carcinoma, anhidrotic ectoderm dysplasia, sideroblastic anaemia and spinocerebellar ataxia, haemochromatosis, sideroblastic anaemia and spinocerebellar ataxia, elf sequences are useful for treating liver disorders chosen from cholestasis, biliary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADQ88396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADQ88396 standard; peptide; 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US2004142354-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mouse elf-3
                                                                                                                                                                                                                                                                                                                                              stones, liver obstruction, stricture, primary biliary cirrhosis and primary sclerosing cholangitis. praja-1 sequences are useful for detecting colon cancer. The present sequence is mouse elf -3 epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 2; Page 17; 85pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel isolated early liver developmental proteins such as elf, liyor-1 (145), pk, protein 106 and praja-1, useful for treating end stage live
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               embryonic liver fodrin; beta spectrin; epitope.
                                                                                                                                                                                                                                                   Sequence 15 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2004-552558/53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-OCT-2003; 2003US-00695994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     μ
                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hepatocellular carcinoma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FNSRRTASDHSWSGM 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FNSRRTASDHSWSGM 15
                                                            FNSRRTASDHSWSGM 220
FNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          epitope peptide #2.
                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-00841349.
98WO-US008656.
99US-00431184.
                                                                                                                                                  6.8%;
15
                                                                                                                    0;
                                                                                                                                                      Score 15;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₿
                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   anemia and ataxia.
                                                                                                                                                      DB 8; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for treating end stage liver
                                                                                                                                                                                    Length 15;
                                                                                                                        Indels
                                                                                                                        0
                                                                                                                        Gaps
                                                                                                                        0
```

```
RESULT 25
ADV13561
CC sample comprising dispesting the polypeptides with a protease thus consisted for positively charged peptides. Also included are a method comprising determining the presence, absence or level of one ore more cc phosphorylated peptides as identified above in cells having a cell state and determining the presence, absence or level of one ore more cc and determining the degree of correlation between the presence, absence cor level of phosphorylated polypeptide with the cells tate), an isolated cor level of phosphorylated polypeptide with the cells tate, an isolated cor level of phosphorylated polypeptide with the cells tate), an isolated conjugation and is modified at a modification site, an isolated in the subsequence of any of the protein sequences given in the specification cc (and which comprise a phosphorylation site within the subsequence), an collected from any of the polypeptides listed in the cc polypeptide selected from any of the polypeptides listed in the cc polypeptide, a method for generating a method for identifying a treatment that modulates phosphorylation of an amino acid in a target comprising a method for generating a peptide standard, a pair of computer memory comprising the peptide obtained (where the peptide is phosphorylated and a corresponding peptide comprising an identifying a computer memory comprising data files storing information relating to the identifying characteristics of positively charged peptides, and a data correlating to the identifying characteristics of positively charged peptides, and a data correlation should be detained for characteristics of positively charged peptides in a sample. The method is useful for characteristing phosphorylated polypeptides in a computer of positively charged the comprising data files), and a method for identifying N-terminal peptides in a sample. The method is useful for characteristing phosphorylated by the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Characterizing phosphorylated polypeptides digesting the polypeptides with a protease and collecting a fraction of test peptides charged peptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alzheimers disease; neuroprotective; nootropic; degeneration; tumor; neoplasm; neurological disease; phosphorylation; protein sequencing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 16; Page 87; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2005-031720/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-JUN-2003; 2003US-0476010P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-JUN-2004; 2004WO-US017613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO2004108948-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    phosphoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human phosphorylated peptide from phophoprotein #1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADV13561,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADV13561 standard; peptide; 17 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to characterizing phosphorylated polypeptides in a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-DEC-2004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-MAR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HARD ) HARVARD COLLEGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              in a sample comprises thus generating test peptides, that enriched for positively
```

Query Match Best Local Similarity

6.8%; 100.0%;

Score 15; Pred. No.

DB 9; L 5.4e-07;

Length 17;

Sequence 17

```
RESULT 26
ADV13562
    뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                    or level of phosphorylated polypeptide with the cell state), an isolated peptide of 5-50 amino acids comprising an amino acid sequence that is a subsequence of any of the protein sequences given in the specification (and which comprise a phosphorylation site within the subsequence), an isolated polypeptide selected from any of the polypeptides listed in the specification and is modified at a modification site, an isolated peptide comprising a mass spectral peak signatures. a method for identifying a treatment that modulates phosphorylation of an amino acid in a target polypeptide standards comprising the peptide obtained (where the peptide is phosphorylated and a corresponding peptide comprising an identical amino phosphorylated and a corresponding peptide comprising an identical amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Characterizing phosphorylated polypeptides in a sample comprises digesting the polypeptides with a protease thus generating test peptides, and collecting a fraction of test peptides that enriched for positively
relating to the identifying characteristics of positively charged peptides and comprising instructions for organizing and/or searching the data), and a method for identifying N-terminal peptides in a sample. The method is useful for characterizing phosphorylated polypeptides in a sample. The present sequence is a peptide from a human phosphoprotein, containing a phosphorylation site, identified by the method of the
                                                                                                                           phosphorylated and a corresponding peptide comprising an identical amino acid sequence but which is not phosphorylated), a system (comprising a computer memory comprising data files storing information relating to the identifying characteristics of positively charged peptides, and a data analysis module capable of executing instructions for organizing and/or searching the data files), a computer program product (comprising data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (comprising determining the presence, absence or level of one ore more phosphorylated peptides as identified above in cells having a cell state and determining the degree of correlation between the presence, absence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sample comprising digesting the polypeptides with a protease thus generating test peptides, and collecting a fraction of test peptides that generating to positively charged peptides. Also included are a method enriched for positively charged peptides. Also included are a method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 16; Page 87; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       charged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          digesting the pol-
and collecting a
charged peptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2005-031720/03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gygi SP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-JUN-2003; 2003US-0476010P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-JUN-2004; 2004WO-US017613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-DEC-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2004108948-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         phosphoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alzheimers disease; neuroprotective; nootropic; degeneration; tumor; neoplasm; neurological disease; phosphorylation; protein sequencing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human phosphorylated peptide from phophoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADV13562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADV13562 standard; peptide; 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (HARD ) HARVARD COLLEGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-MAR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   invention relates to characterizing phosphorylated polypeptides in a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OVSONGLPAEOGSPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OVSONGLPAEOGSPR 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
RESULT 27
AAW81644
ID AAW81
밁
                   Ş
                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ÖS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
K
                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                     Query Match
                                                                                                                                This peptide corresponds to amino acids 2140-2154 of the mouse elf-1 protein (see AAW81638). Claimed peptides (see AAW81643-52) derived from early liver development proteins (see AAW81638-41) of the invention have been used to raise antibodies. It is an object of the invention to provide proteins which are characteristic of early liver development, and to raise antibodies from these proteins which will be useful as markers, and will be useful in methods of identifying such proteins and peptides, tracing hepatocyte lineage, and treating liver disease. Elf-1 is used in a claimed method to treat cholestasis, biliary stones, liver obstruction,
                                                                                              Sequence 14
                                                                                                                                                                                                                                                                                  New isolated early liver development genes - used to develop products for treating, e.g. liver disease, hepatocellular carcinoma, degenerative neurological disorders, anaemia, ataxia or haemochromatosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 17 AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention
                                                                                                                                                                                                                                                             Claim 29; Page 25; 92pp; English.
                                                                                                                                                                                                                                                                                                                                        WPI; 1999-009382/01
                                                                                                                                                                                                                                                                                                                                                                                                                                         30-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W09848827-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antibody.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cholestasis; biliary stone; hepatic obstruction; stricture,
primary biliary cirrhosis; primary sclerosing cholangitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Elf-1; mouse; liver development; signal transduction; biliary tree;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW81644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW81644 standard; peptide; 14
                                                                                                                                                                                                                                                                                                                                                                                       (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                30-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mouse elf-1 C-terminal peptide used to raise antibody
                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178 QVSQNGLPAEQGSPR 192
                       206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                             l Similarity
Ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                  FNSRRTASDHSWSG 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QVSQNGLPAEQGSPR 17
                                                                                                                       primary
                                                                                              A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                 97US-00841349
                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-US008656
                                                                                                                       biliary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.8%;
                                                         6.4%;
                                                                                                                        cirrhosis and
                                             Score 14; DB; Pred. No. 4.4
0; Mismatches
                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 15;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                         DB 2;
5. 4.4e-06;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 9;
                                                                                                                       primary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .4e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 17;
                                                                     Length 14,
                                                                                                                       sclerosing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                               Indels
                                                                                                                       cholangitis
                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

RESULT 28

```
This invention relates to novel genes and encoded proteins thereof, CC isolated during early liver development that are useful in the diagnosis CC and treatment of end stage liver disease and other disorders.

CC Specifically, it refers to genes that encode proteins such as elf 1-3, CC livor-1 (145), pk, protein 106 and praja-1. The present invention CC describes the characterisation of these early liver development proteins, CC and also methods to raise peptide specific antibodies that are useful as CC markers, as well as for tracing hepatocyte lineage. Furthermore, elf CC proteins 1-3 are useful in treating disorders including cholestasis, CC biliary stones, hepatic obstruction, stricture, primary biliary cirrhosis CC or primary sclerosing cholangitis. In addition, through using gene CC ectoderm dysplasia, hepatocellular carcinoma and other diseases including CC enamenta, ataxia, degenerative neurological disorders and CC haemochromatosis. Accordingly, these proteins can be described as CC peptide sequence is from the C-terminus of the murine elf 3 protein, used CC raise rabbit anti-mouse antibodies of the invention. NOTE: This sequence differs from the murine Elf-3 peptide sequence given in example
밁
                            S
                                                                      Query Match
Best Local S
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        murine; mouse; early liver development; end stage liver disease; elf 1-3; liyor-1 (145); pk; protein 106; praja-1; hepatocyte lineage; cholestasis; biliary stone; hepatic obstruction; stricture; primary biliary cirrhosis; primary sclerosing cholangitis; gene therapy; anhidrotic ectoderm dysplasia; hepatocellular carcinoma; anaemia; ataxia; neurological disorder; haemochromatosis; hepatotropic; cytostatic; neuroprotective; antianaemic; cardiant; antibody.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MUB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New antibodies recognizing early liver development proteins, useful as markers, in identifying peptides and proteins having early liver development characteristics, tracing hepatocyte lineage or treating liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mishra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-APR-1997;
30-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US6642362-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide from the C-terminus of the murine elf 3 protein (SeqID20).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADF74507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADF74507 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 1; SEQ ID NO 20; 82pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2003-851362/79
                                                                                                                                          Sequence 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            musculus.
_
                                                                                       Similarity
                                  FNSRRTASDHSWSG 219
                                                                      6.4%; Score 14; DB llarity 100.0%; Pred. No. 4. Conservative 0; Mismatches
                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-00841349.
98WO-US008656.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9905-00431184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                              DB 7; L.
5. 4.4e-06;
7 0;
                                                                                                          Length 14;
                                                                      0
                                                                        Gaps
                                                                        0
```

```
RESULT 29
ADQ88379
ID ABDQ88
XX ADQ88
XX ADQ88
XX ADQ88
XX ADQ88
XX ADQ88
XX Mouse
XX Barly
XX Hepat
XX Hepat
XX Mish
XX US20
XX US20
XX ON Mus I
XX ON Mus I
XX WPI
XX ON MUS I
XX WPI
XX Clail
XX
RESULT 30
ADY65644
ID ADY65
XX
AC ADY65
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention provides novel early liver developmental proteins such as elf (embryonic liver fodrin or beta spectrin) 1-3, liyor-1 (145), pk, proteins 106 and praja-1 and nucleic acid molecules encoding such proteins. Other genes coding for early liver developmental proteins include genes 20, 36, 41, 112, 114, 118 and 129. Polynucleotides of the invention are useful for treating diseases chosen from end stage liver disease, hepatocellular carcinoma, anhidrotic ectoderm dysplasia, degenerative neurological disorders, anaemia, ataxia, haemochromatosis, sideroblastic anaemia and spinocerebellar ataxia. elf sequences are useful for treating liver disorders chosen from cholestasis, biliary stones, liver obstruction, stricture, primary biliary circhosis and primary sclerosing cholangitis. praja-1 sequences are useful for detecting colon cancer. The present sequence is mouse elf epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hepatocellular carcinoma; anhidrotic ectoderm dysplasia; degenerative neurological disorder; anaemia; ataxia; haemochromatosis; sideroblastic anaemia; spinocerebellar ataxia; cholestasis; biliary stone; liver obstruction; stricture; primary biliary cirrhosis; primary sclerosing cholangitis; colon cancer; therapy; mouse; elf; embryonic liver fodrin; beta spectrin; epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel isolated early liver developmental proteins such as elf, liyor-1 (145), pk, protein 106 and praja-1, useful for treating end stage live disease, hepatocellular carcinoma, anemia and ataxia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADQ88379 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 14 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 17; SEQ ID NO 20; 85pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2004-552558/53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mishra L;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-APR-1997;
30-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-OCT-2003; 2003US-00695994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US2004142354-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Early liver developmental protein; liver disease;
hepatocellular carcinoma; anhidrotic ectoderm dys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mouse elf epitope peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-OCT-2004 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADQ88379;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (MISH/) MISHRA
                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                          206 FNSRRTASDHSWSG 219
                                                                                                                                                                                                                                                                                                                                                      14;
                                                                                                                                                                                                                                  _
                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-00841349.
98WO-US008656.
99US-00431184.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               peptide; 14
                                                                                                                                                                                                                                                                                                                                                                                       6.4%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                         <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                       Score 14;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                       DB 8; Le
                                                                                                                                                                                                                                                                                                                                                                                                                         Length 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stage liver
                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                             Gaps
```

ADY65644 standard; protein; 597 AA

```
RESULT 31
AAB50652
ID AAB50
XX
AC AAB50
XX
                                                                                                                                                                                                                                           밁
                                                                                                                                                S
                                                                                                                                                                                 Matches
                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                               mansoni genome. The nucleic acid molecule is useful for preventing, diagnosing, or treating S. mansoni infection (schistosomiasis). It can also be used as vaccine against S. mansoni. The present sequence is a Schistosoma mansoni protein of the invention. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                          comprising an amino acid sequence encoded by the nucleic acid, an immunogenic composition comprising the isolated S. mansoni protein, an isolated antibody which specifically binds to the isolated S. mansoni protein, a hybridoma cell line which produces the isolated antibody, a method for determining a S. mansoni infection in a subject and a computer readable medium having recorded in it a nucleic acid molecule from S.
               AAB50652
                                                                                                                                                                                                                                           Sequence 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to an isolated nucleic acid molecule encoding a Schistosoma mansoni protein, or its portion which is at least 20 amino acids in length. Also included are an expression vector comprising the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated nucleic acid molecule encoding a Schistosoma mansoni protein, useful for as a vaccine or for preventing, diagnosing, o treating Schistosoma mansoni infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Verjovski-Almeida S, Lei
Demarco R, Garcia JCL,
Dias-Neto E, Setubal JC,
                                          AAB50652 standard; protein; 2326 AA.
                                                                                                                                                                                                                                                                                    ftp.wipo.int/pub/published_pct_sequences. Also, SEQ mentioned in the specification but are not included
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2005-223357/23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gargioni C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-SEP-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-SEP-2004; 2004WO-BR000170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-MAR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2005023979-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schistosoma mansoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Schistosomacide; schistosomiasis; psychiatric disorder; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-JUN-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transformed/transfected with the nucleic acid (or expression vector),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acid operably linked to a promoter,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (AMPA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mmunogenic composition comprising the nucleic acid in combination pharmaceutical adjuvant or carrier, an isolated S. mansoni protein
                                                                                                                      64
                                                                                                                                                 42
                                                                                                                                                                               14;
                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNDACAO AMPARO A PESQUISA DO ESTADO
                                                                                                                                                VOKKTETKWVNSHL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 1062;
                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                           $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003US-0502277P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                         6.4%; bu
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Leite LCC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Martins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Menck
                                                                                                                                                                                            Score 14; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52pp; English.
                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CFM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Farias LP, M
EAL, Ho PL,
CFM, Madeira
                                                                                                                                                                                            DB 9; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Miyasato PA,
Nascimento
                                                                                                                                                                               0
                                                                                                                                                                                                         Length 597;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMBN,
                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                    ID 2141-2152 are in the sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rodrigues V;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALTO;
                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kawano
                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       an
                                                                                                                                                                              0
```

```
٠,٠
                                                                                                                                                                                                                                                                                                              밁
     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                             PN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X8XXXX
                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
pathogen tolerance; pest tolerance; plant disease resistance; cell cycle pathway modification; plant growth regulator; homologous recombination; seed oil yield; protein yield; carbohydrate; nitrogen; phosphorus; photosynthesis; lignin; galactomannan; bacterial polypeptide.
                                                                             Recombinant DNA construct; transformed plant; improved plant property;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      different interacting proteins. The unc-5C variant cDNAs and unc-5H31 cDNA are useful in methods for identifying compounds which reduce or inhibit the lethal phenotype associated with the expression of the unc-5 death domain in yeast. They are also useful in yeast two hybrid experiments for identifying unknown human cDNAs which encode proteins that interact with the human unc-5C protein. AAC90914 to AAC90971 and
                                                                                                                                                                                                                         ADN23721 standard; protein; 2326 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2326 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5Cb, unc-5Cc and unc-5C8) which correspond to alternatively spliced unc-5C transcripts, and a human unc-5HS1 cDNA which shares homology with the Rattus norvegicus unc-5HS1 cDNA. Also described are assays based on protein-protein-interactions between the unc-5 protein and a variety of
                                                                                                                              Bacterial polypeptide #6374.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB50646 to AAB50693 represent sequences used in the exemplification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 37; Page 110-118; 246pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Three variants of human unc-5C cDNAs (unc-5Cb, unc-5Cc and unc-5C8) and a human unc-5HS1 cDNA, useful in yeast two hybrid experiments for identifying unknown human cDNAs which encode proteins that interact with the human unc-5C protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB; AAC90918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Van Criekinge W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-JUN-2000; 2000WO-EP005108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein-protein interaction;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; Caenorhabditis elegans; UNC-5; splice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-016508/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (DEVG-) DEVGEN NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  elegans
                                                                                                                                                                                                                                                                                                              110
                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                           14;
                                                                                                                                                                                                                                                                                                                                  VQKKTFTKWVNSHL 55
                                                                                                                                                                                                                                                                                                            VOKKTETKWVNSHL 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spectrin beta-chain/fodrin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention
                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99GB-00012755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Roelens I,
                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        describes
                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                          Score 14;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bogaert T,
                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 variants of human unc-5C cDNAs
                                                                                                                                                                                                                                                                                                                                                                                        DB 4; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Verwaerde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variant; nematode
                                                                                                                                                                                                                                                                                                                                                                           <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO:12
                                                                                                                                                                                                                                                                                                                                                                                                      Length 2326;
                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٦
                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       worm;
                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (unc-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of
E
```

```
RESULT 33
ABA55025
                                                                                                                                                                                                                                                                                                                                            CC promoter functional in a plant cell, where the promoter is positioned to comprise for expression of a polynucleotide encoding a polypeptide from a CC microbial source. The invention also relates to a transformed plant CC comprising the recombinant DNA construct and a method of producing a comprising the recombinant DNA construct and a method of producing a crop plant construct and property. The plant is a crop plant construct and property at transformed plant construct and growing the transformed plant construct and growing the transformed plant, where the complynucleotide or polypeptide is useful for improving plant properties.

CC The recombinant DNA construct is useful for producing plant properties.

CC increased plant properties, e.g. improved cold, heat or drought tolerance, increased resistance to plant disease, better growth rate by modification of the cell cycle pathway with plant growth regulators, increased rate of content, improved yield by modification of carbohydrate, nitrogen or content, improved plant growth and development under at least one stress condition, improved lignin production of photosynthesis or by providing improved plant growth and development under at least one stress composed the invention. Note: The sequence data for this patent did not composed the invention. Note: The sequence abata for this patent did not composed for the printed specification but was obtained in electronic content.
SEXEXEXE
                                                                                                                                                                                           밁
                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New recombinant DNA construct comprising a promoter positioned to provide for expression of a polynucleotide encoding a polypeptide from a microbial source, useful for producing plants with improved properties.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to a recombinant DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2004-061375/06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SLAT/)
(CHEN/)
(GOLD/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-FEB-2002; 2002US-0360039P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-FEB-2003; 2003US-00369493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US2003233675-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria
                                                                                                                                                                                                                                                                                                                    Sequence 2326 AA;
             Human actin-cross-linking protein,
                                              11-AUG-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (CAOY/)
                                                                                                           AEA55025 standard; protein; 385 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HINK/)
                                                                                                                                                                                           110
                                                                                                                                                                                                                       42 VOKKTETKWVNSHL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAO Y.
HINKLE G J.
SLATER S C.
CHEN X.
                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hinkle GJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GOLDMAN B S
                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 6374; 122pp; English.
                                                                                                                                                                                           VOKKTETKWVNSHL 123
                                                                                                                                                                                                                                                       Conservative
                                              (first entry)
                                                                                                                                                                                                                                                                      6.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Slater SC,
                                                                                                                                                                                                                                                       °.
                                                                                                                                                                                                                                                                        Score 14;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen X,
                                                                                                                                                                                                                                                          Mismatches
              ACF7,
                                                                                                                                                                                                                                                                      DB 8; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goldman BS;
              protein fragment,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       construct comprising
                                                                                                                                                                                                                                                                                     Length 2326;
                SEQ
                                                                                                                                                                                                                                                         0
                  ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                                                         Gaps
                  ö
                                                                                                                                                                                                                                                          0
```

```
AAY59242
ID AAY5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to a method of characterizing proteins present in the plasma membrane (PM) of live cells. The proteins of the invention are useful in identifying diagnostic markers and potential drugs. The invention is useful for identifying drugs for diagnosing and treating disorders such as cancer which are associated with abnormal representation of cell surface proteins. The present sequence is human actin-cross-linking protein, ACF7, protein fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Characterizing proteins present in a plasma membrane of a cell, useful in identifying diagnostic markers and potential drugs, comprises subjecting a cell to a protease treatment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   actin-cross-linking protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Plasma membrane; diagnosis; therapeutic; cancer; cytostatic; neoplasm;
                                                                                                                                                                                                                                                                                                                                                                                                             A rod shortened dystrophin (deltaDysH4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 385 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2005-418017/42.
PIR; S66292.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Linial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-NOV-2003; 2003US-0524885P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-NOV-2004; 2004WO-IL001085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-JUN-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO2005052182-A2
WPI; 2000-100771/09
N-PSDB; AAZ48571.
                                                                                                                                                                                                                                                                                                                                            Muscular dystrophy; rod domain; adeno-associated virus; dystrophin gene; truncated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       31-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY59242;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY59242 standard; protein; 897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (YISS ) YISSUM RES DEV CO HEBREW UNIV JERUSALEM
                                                                                                                                                                                                                                                             JP11318467-A.
                                                                                                                                                                          08-MAY-1998;
                                                                                                                                                                                                                  24-NOV-1999
                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                              (KAGA-) KAGAKU GIJUTSU SHINKO JIGYODAN.
(KOKU-) KOKURITSU SEISHIN SHINKEI CENT SOCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25; SEQ ID NO 1; 196pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VOKKTETKWVN 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Inberg A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                               98JP-00142134
                                                                                                                                                                        98JP-00142134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bledi Y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 385;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

0

밁 Ś

```
RESULT 35
AAY59241
                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention provides a gene for the treatment of muscular dystrophy having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having se sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low
                                      Sequence 900
                                                                           (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low immune reaction. The present sequence represents a rod shortened
                                                                                                                 having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having a base sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus
                                                                                                                                                           The
                                                                                                                                                                                  Disclosure; Page 26-28; 44pp; Japanese.
                                                                                                                                                                                                            A gene encoding a shortened dystrophin - useful muscular dystrophy.
                                                                                                                                                                                                                                                                  WPI; 2000-100771/09
                                                                                                                                                                                                                                                                                                                                 08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                         08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                    24-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                            JP11318467-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Muscular dystrophy; rod domain; adeno-associated virus; dystrophin gene; truncated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A rod shortened dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY59241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY59241 standard; protein; 900 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 897 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A gene encoding a shortened muscular dystrophy.
                                                                                                                                                                                                                                                                                        (KAGA-) KAGAKU GIJUTSU SHINKO JIGYODAN.
(KOKU-) KOKURITSU SEISHIN SHINKEI CENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mmune reaction. The present
                                                                                                                                                         invention provides a gene for the treatment of muscular dystrophy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11,
                                                                                                                                                                                                                                                    AAZ48570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.0%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page 32-33;
                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                 98JP-00142134.
                                                                                                                                                                                                                                                                                                                                                         98JP-00142134
5.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (deltaDysH1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dystrophin -
Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence represents a rod shortened
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
.
No.
                                                                                                                                                                                                                                                                                          SOCHO
DB 3;
0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3;
0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 useful for the treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
          Length 900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 897;
                                                                                                                                                                                                                          for the treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
RESULT 37
AAY59240
    *****
                                                                                                                                                                                          밁
                                                                                                                                                                                                        . 8
                                                                                                                                                                                                                                                                                                ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X X X X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          XSX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   줒즟
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                         A rod shortened
                                                                                                                                                                                                                                                                                                                                   having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having a base sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low immune reaction. The present sequence represents a rod shortened
Muscular dystrophy; rod domain; adeno-associated virus; dystrophin gene; truncated.
                                                                    31-MAR-2000
                                                                                              AAY59240
                                                                                                                      AAY59240 standard; protein; 1201 AA
                                                                                                                                                                                                                                                                                               Sequence 1092 AA;
                                                                                                                                                                                                                                                                                                                         immune reaction.
dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 8; Page 14-16; 44pp; Japanese:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A gene encoding a shortened dystrophin - useful for the treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dystrophin gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Muscular dystrophy; rod domain; adeno-associated virus; AAV,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A rod shortened dystrophin (deltaDysAx2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY59237;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY59237
                                                                                                                                                                                                                                                                                                                                                                                                                    The invention provides a gene for the treatment of muscular dystrophy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (KAGA-) KAGAKU GIJUTSU SHINKO JIGYODAN.
(KOKU-) KOKURITSU SEISHIN SHINKEI CENT SOCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JP11318467-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000-100771/09
                                                                                                                                                                                         16
                                                                                                                                                                                                                 42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42
                                                                                                                                                                                                                                          11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAZ48566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard; protein; 1092 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dystrophy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VOKKTETKWVN 52
                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98JP-00142134.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98JP-00142134.
                                         dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   truncated
                                                                                                                                                                                                                                                         5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
                                        (deltaDysM3).
                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                         Score 11;
Pred. No.
                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                         DB 3;
0.17;
                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                    Length 1092;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
               AAV;
                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
占
                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                        RESULT 38
                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention provides a gene for the treatment of muscular dystrophy having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having a base sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low immune reaction. The present sequence represents a rod shortened
                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 26-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24-NOV-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JP11318467-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                     A rod shortened dystrophin (deltaDysAx11).
                                                                                                                                                                                                                                                           31-MAR-2000
                                                                                                                                                                                                                                                                                AAY59238;
                                                                                                                                                                                                                                                                                                    AAY59238 standard; protein; 1310 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   muscular dystrophy.
A gene encoding a shortened muscular dystrophy.
                                                                                                                  08-MAY-1998;
                                                                                                                                                               JP11318467-A
                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                    dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (KAGA-)
                                N-PSDB; AAZ48567
                                          WPI; 2000-100771/09
                                                                                              08-MAY-1998;
                                                                                                                                        24-NOV-1999
                                                                                                                                                                                                                 Muscular dystrophy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (KOKU-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene encoding a shortened dystrophin - useful for the treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000-100771/09
                                                                                                                                                                                                                                                                                                                                                        16
                                                                                                                                                                                                                                                                                                                                                                           42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAZ48569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KAGAKU GIJUTSU SHINKO JIGYODAN.
KOKURITSU SEISHIN SHINKEI CENT
                                                             KAGAKU GIJUTSU SHINKO JIGYODAN.
KOKURITSU SEISHIN SHINKEI CENT SOCHO.
                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                        VQKKTFTKWVN
                                                                                                                                                                                                     gene;
                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                            B
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98JP-00142134.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98JP-00142134.
                                                                                              98JP-00142134
                                                                                                                   98JP-00142134
                                                                                                                                                                                                         truncated.
                                                                                                                                                                                                                                                                                                                                                                                                           5.0%;
                                                                                                                                                                                                                 rod domain;
                                                                                                                                                                                                                                                                                                                                                        26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                 0
           dystrophin -
                                                                                                                                                                                                                                                                                                                                                                                                           Score 11;
Pred. No.
                                                                                                                                                                                                                  adeno-associated virus; AAV;
                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                           DB 3;
0.18;
            useful
                                                                                                                                                                                                                                                                                                                                                                                                 <u>۰</u>
                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1201;
            for the
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
            treatment
                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X X X S S S S S S S S S X X
                                                      AAY59239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 39
Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention provides a gene for the treatment of muscular dystrophy having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having a base sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low immune reaction. The present sequence represents a rod shortened
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1310 AA;
                                                                                         The invention provides a gene for the treatment of muscular dystrophy having at least one rod repeat structure of hinge 1, hinge 4 and rod domain of dystrophin gene and having a base sequence of 4.5 kb. The gene and a gene-introducing medium consisting of an adeno-associated virus (AAV) vector or lentivirus vector containing the rod shortened dystrophin genes can be used for the genetic treatment of muscular dystrophy of low immune reaction. The present sequence represents a rod shortened
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Muscular dystrophy; rod domain; adeno-associated virus; AAV; dystrophin gene; truncated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A rod shortened
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY59239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY59239 standard; protein; 1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 8; Page 18-21; 44pp; Japanese.
                                                                                                                                                                                                       Claim 8; Page 22-24; 44pp; Japanese.
                                                                                                                                                                                                                                  muscular
                                                                                                                                                                                                                                                                         N-PSDB; AAZ48568
                                                                                                                                                                                                                                                                                       WPI; 2000-100771/09
                                                                                                                                                                                                                                                                                                                                                       08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                               08-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                          24-NOV-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                      JP11318467-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens.
                                                     Sequence 1310
                                                                                 dystrophin
                                                                                                                                                                                                                                                                                                               (KAGA-)
(KOKU-)
                                                                                                                                                                                                                               gene encoding a shortened dystrophin - useful for the treatment of uscular dystrophy.
Local Similarity
les 11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11;
                                                                                                                                                                                                                                                                                                               KAGAKU GIJUTSU SHINKO JIGYODAN
KOKURITSU SEISHIN SHINKEI CENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.0%;
ilarity 100.0%;
Conservative (
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                      ₽
A
                                                                                                                                                                                                                                                                                                                                                       98JP-00142134.
                                                                                                                                                                                                                                                                                                                                                                                98JP-00142134.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dystrophin (deltaDysAH3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
               5.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 11;
Pred. No.
               Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ⋛
                                                                                                                                                                                                                                                                                                                  SOCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 3;
               DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1310;
                             Length 1310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
    0
```

S

42 VQKKTFTKWVN

心意奏其其

0

```
16
```

밁

RESULT 40 ADN22598 ADN22598 standard; protein; 1355 AA.

pathogen tolerance; pest tolerance; plant disease resistance; cell cycle pathway modification; plant growth regulator; homologous recombination; seed oil yield; protein yield; carb, nitrogen; phosphorus; photosynthesis; lignin; galactomannan; Recombinant DNA construct; transformed plant; improved plant property; cold tolerance; heat tolerance; drought tolerance; herbicide; osmosis; Bacterial polypeptide #5251. 02-DEC-2004 bacterial polypeptide (first entry) yield; carbohydrate

Bacteria

US2003233675-A1

18-DEC-2003

20-FEB-2003; 2003US-00369493

21-FEB-2002; 2002US-0360039P

(CHEN/) (HINK/) (SLAT/) (CAOY/)) CAO Y.
) HINKLE G J.
) SLATER S C.
) CHEN X.
) GOLDMAN B S.

Cao Y, Hinkle GJ, Slater SC, Chen X, Goldman BS

recombinant DNA construct comprising a promoter positioned to provide expression of a polynucleotide encoding a polypeptide from a robial source, useful for producing plants with improved properties. for producing plants

Claim 1; SEQ ID NO 5251; 122pp; English

cc provide for expression of a polynucleotide encoding a polypeptide from a committed source. The invention also relates to a transformed plant cc comprising the recombinant DNA construct and a method of producing a cc transformed plant having an improved property. The plant is a crop plant comprising the recombinant DNA construct from a plant is a crop plant comprising an improved property comprises transformed plant is a crop plant comprise transformed plant properties. The method of producing a transformed plant comprises transformed plant, where the comprise to polypeptide is useful for improving plant properties. The recombinant DNA construct is useful for producing plant properties. The recombinant DNA construct is useful for producing plant properties. The recombinant DNA construct is useful for producing plant properties. The recombinant DNA construct is useful for producing plants with conformation of the conditions, pathogens or pests, conformation to harbicides, extreme osmotic conditions, pathogens or pests, conformation recombination, modification of protein yield and/or content, improved yield by modification of protein yield and/or content, improved yield by modification of photosynthesis or by conviding improved plant growth and development under at least one stress condition improved plant growth and development under at least one stress condition in many particular or improved all conditions in production or protein the plant of photosynthesis or by condition improved plant growth and development under at least one stress conditions. condition, improved lignin production or improved galactomannan production. This sequence represents a bacterial polypeptide used in the scope of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic promoter functional The invention relates to a recombinant DNA construct comprising seqdata.uspto.gov/sequence.html plant cell, where the promoter is positioned m to

```
RESULT 41
ADN22599
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                     Z Z Z Z
                                                                                                                                                                                                                                     PA
PA
PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local
Matches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                              Cao Y,
                                                                                                                                                                                                                                                                           21-FEB-2002;
                                                                                                                                                                                                                                                                                                                          US2003233675-A1
                                                                                                                                                                                                                                                                                                                                         Bacteria
                                                                                                                                                                                                                                                                                                                                                                              pathogen tolerance; pest tolerance; plant disease resist cell cycle pathway modification; plant growth regulator;
                                                                                                                                                                                                                                                                                                                                                                                             Recombinant DNA construct; transformed plant; improved plant property; cold tolerance; heat tolerance; drought tolerance; herbicide; osmosis;
                                                                                                                                                                                                                                                                                                                                                                                                                      Bacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADN22599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADN22599
                                                                                                                                                                                                                                     (SLAT/)
                                                                                                                                                                                                                                                                                          20-FEB-2003; 2003US-00369493
                                                                                                                                                                                                                                                                                                                                                         bacterial
                                                                                                                                                                                                                                                                                                                                                               nitrogen;
                                                                                                                                                                                                                                                                                                                                                                        homologous
                                                                                                                                                                                                                             (GOLD/)
                                                                                                                                                                                                                                                    (HINK/)
                                                                                                                                                                                                                                                             (CAOY/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42
                                                                                                                                                                                                                                   CAO Y.
HINKLE G J.
SLATER S C.
CHEN X.
                                                                                                                                                                                                            Hinkle GJ,
                                                                                                                                                                                                                             GOLDMAN B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard; protein; 1355 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                       phosphorus; photosynthesis; lignin; polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                      polypeptide #5252
                                                                                                                                                                                                                                                                                                                                                                       recombination; seed oil yield;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                           2002US-0360039P
                                                                                                                                                                                                              Slater
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.0%; Score 11; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                      tolerance; plant disease resistance
                                                                                                                                                                                                             SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                              Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                              ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 8
                                                                                                                                                                                                              Goldman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8,
                                                                                                                                                                                                                                                                                                                                                               galactomannan;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1355;
                                                                                                                                                                                                              BS;
                                                                                                                                                                                                                                                                                                                                                                        yield;
                                                                                                                                                                                                                                                                                                                                                                       carbohydrate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
```

New recombinant DNA construct comprising a promoter positioned to provide for expression of a polynucleotide encoding a polypeptide from a microbial source, useful for producing plants with improved properties.

Claim 1; SEQ ID NO 5252; 122pp; English.

The invention relates to a recombinant DNA construct comprising a CC promoter functional in a plant cell, where the promoter is positioned to provide for expression of a polynucleotide encoding a polypeptide from a CC microbial source. The invention also relates to a transformed plant CC comprising the recombinant DNA construct and a method of producing a crop plant source or soybean. The method of producing a transformed plant CC such as maize or soybean. The method of producing a transformed plant CC having an improved property comprises transforming a plant with the CC recombinant DNA construct and growing the transformed plant, where the CC polynucleotide or polypeptide is useful for improving plant properties. CC improved plant properties, e.g. improved cold, heat or drought tolerance, tolerance to herbicides, extreme osmotic conditions, pathogens or peste, increased resistance to plant disease, better growth rate by modification of the cell cycle pathway with plant growth rate by modification of content, improved yield by modification of carbohydrate, nitrogen or phosphorus use and/or uptake, by modification of photosynthesis or by

```
RESULT 42
AEA24046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  និនិនិនិនិនិ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      providing improved plant growth and development under at least one stress condition, improved lignin production or improved galactomannan production. This sequence represents a bacterial polypeptide used in the scope of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic
                                                                                                                                                                                                                                                                                                                                                                          Abbas A,
Wu TD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              immune disorder; PRO; Antiinflammatory; Dermatological;
Immunosuppressive; Antirheumatic; Antiarthritic; Osteop
Muscular-Gen.; Vasotropic; Antianemic; Antipsoriatic; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEA24046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1355 AA;
                                                                                                                                                                                                                                                                         New nucleic acid encoding PRO polypeptide, useful for diagnosing and treating an immune related disorder, e.g. systemic lupus erythematosus rheumatoid arthritis, osteoarthritis, autoimmune hemolytic anemia, or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02-MAR-2004; 2004WO-US006460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO2005051988-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human PRO polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-AUG-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AEA24046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            format from USPTO at seqdata.uspto.gov/sequence.html.
                                                                                 including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, lymphadenopathy, splenomegaly and leukopeperesent sequence of a human P
                                                                                                                         spondyloarthropathies, systemic sclerosis, idiopathic inflammatory myopathies, Sjogren's syndrome, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune or immune-mediated skin diseases
                                                                                                                                                              The invention relates to an isolated nucleic acid. The polypeptide, compound or composition, and methods are useful for diagnosing and treating an immune related disorder, e.g. systemic lupus erythematosus, rheumatoid arthritis, osteoarthritis, juvenile chronic arthritis,
                                                                                                                                                                                                                                                                                                                                                                                                                                             03-MAR-2003; 2003US-0451884P
                                         Sequence
                                                                                                                                                                                                                                                               psoriasis.
                                                                                                                                                                                                                                                                                                                                  N-PSDB; AEA24045
                                                                    polypeptide
                                                                                                                                                                                                                                    Disclosure; SEQ ID NO 588; 966pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                  (GETH )
                                                                                                                                                                                                                                                                                                                                               2005-417958/42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                  GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VOKKTETKWVN
                                          2000
                                                                                                                                                                                                                                                                                                                                                                                     Bodary S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.0%;
llarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                          Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
 5.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                      Clark H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
 Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                        Schoenfeld
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 8
0 B
                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                      Williams
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Immunostimulant
                                                                                                                                                                                                                                                                                                                                                                                        ΡΜ
                                                                                                                                                                                                                                                                                                                                                                                        Wood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                one stress
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                        WI;
                                                                                                  The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

Query Match Best Local Similarity

В 9; .29;

Length 2000;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                               밁
                                                                                                                                                                 Ś
XXXXXXXXXX
                                                                                                                   RESULT 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                      Matches
                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                           The inventors claim an MD probe comprising a purified ss NA SQ which hybridises to at least a part of the MD gene; pure dystrophin (DS) polypeptide, purified NA encoding DS and antibodies (Ab) to DS. The probes are equal to or greater than 10b of one of 12 cDNA sequences deposited as ATCC 58666-57677. The MD gene is human, or a murine Dmd
                                                                                                                                                                                                                           Sequence 3685
                                                                                                                                                                                                                                                                                                                                    Muscular dystrophy gene - used polypeptide and antibodies for
                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dystrophin; muscular dystrophy; probe; antibody; diagnosis; prenatal; heterozygote; gene therapy; genetic screening; foetal screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence encoded by human muscular dystrophy (MD)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAP90373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAP90373
                                               25-MAR-2003
10-JAN-1990
                                                                                                                                                                                                                                                                                                         Disclosure; Fig 8; 68pp; English.
                                                                                                                                                                                                                                                                                                                                                                             WPI; 1989-220587/30.
                                                                                                                                                                                                                                                                                                                                                                                                                                      22-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-DEC-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-JUL-1989.
        Duchenne muscular dystrophy; protein deletion; antiserum
                            Human Duchenne muscular dystrophy gene
                                                                             AAP90290;
                                                                                                AAP90290 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                   (CHIL-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42
                                                                                                                                                                   42
                                                                                                                                                                                                                                                                                                                                                                                                Ę,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                16
                                                                                                                                                                                                                                                                                                                                                                                                                   CHILDRENS MED
                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Susmance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VQKKTFTKWVN 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard; protein; 3685 AA
                                                                                                                                                                   VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                               Monaco A,
                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                               (revised)
(first en
                                                                                                                                                                                                                             ß,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene therapy; genetic screening;
                                                                                                                                                                                                                                                                                                                                                                                                                                       87US-00136618
                                                                                                                                                                                                                                                                                                                                                                                                                                                           88WO-US004504.
                                                                                                protein;
                                                entry)
                                                                                                                                                                                               5.0%;
                                                                                                                                                26
                                                                                                                                                                                                                                                                                                                                                                                                                      CENT
                                                                                                                                                                                                                                                                                                                                                                                                 Hoffman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                      0;
                                                                                                                                                                                                Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                     for prepn.
diagnosis a
                                                                                                                                                                                                                                                                                                                                                                                                 臣,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Son to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                Koenig
                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                  0.48;
                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                      probes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>..</u>
                                                                                                                                                                                                          Length 3685;
                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                       dystrophic of muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
RESULT 45
ADL83110
       PRODUCTION OF THE PRODUCTION O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene.
2003 t
                                                                                                                                        Chiu H,
Wu TD;
New PRO polypeptide, useful for diagnosing and treating a B cell re disorder, e.g. Burkitt's lymphoma, rheumatoid arthritis, autoimmune
                                                                      N-PSDB;
                                                                                         WPI; 2004-329389/30
                                                                                                                                                                                                                                                    16-SEP-2002;
                                                                                                                                                                                                                                                                                            15-SEP-2003; 2003WO-US029097
                                                                                                                                                                                                                                                                                                                                           25-MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                     WO2004024097-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antiallergic; Muscular; Gene Therapy; PRO; B cel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human PRO84704,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADL83110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADL83110 standard; protein; 3685 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3685 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptides may be prepared consisting of all or part of the sequence and used to produce Abs for detecting protein deletions or defects in the gene. (Updated on 25-MAR-2003 to correct PR field.) (Updated on 25-MAR-2003 to correct PA field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 3; Page 15-16; 20pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Detecting |
associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1989-257828/36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ishiguro T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-MAR-1988;
21-SEP-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-MAR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-SEP-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               immune-mediated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Immunosuppressive; Cytostatic; Antiarthritic; Antirheumatic; Antianemic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (AJIN ) AJINOMOTO KK.
                                                                                                                                                                                                       (GETH )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42
                                                                                                                                                                                                       GENENTECH
                                                                      ADL83109
                                                                                                                                                           Clark H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human Duchenne muscular dystrophy d protein deletion or defect using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                    2002US-0411392P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eguchi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88JP-00051313.
88JP-00237200.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               89EP-00302145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            inflammatory
                                                                                                                                                                                                       INC.
                                                                                                                                                           Dennis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ar; Neuroprotective; Nephrotropic; Antiinflammatory; cell related disorder; cancer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             312
                                                                                                                                                           ᄌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 11;
Pred. No.
                                                                                                                                                        Fong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                           ŝ
                                                                                                                                                           Schoenfeld
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
0.48;

    by assaying for the
antibody to the protein.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 3685
                                                                                                                                                           'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                           Wood
                       cell related
                                                                                                                                                           ΨI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
RESULT 46
ADN04004
ID ADN04
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         anaemia, myasthenia gravis, hypoadrenocorticism, glomerulonephritis, or ankylosing spondylitis. The PRO proteins are also useful for preparing medicament for treating a condition that is responsive to the PRO protein, e.g. cancer or immune-mediated inflammatory diseases. The PRO coding sequences are useful as hybridization probes in chromosome and gene mapping, in preparing PRO proteins, or in generating transgenic animals or knockout animals, which in turn are useful in the development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            antigen unresponsiveness, selective IgA deficiency, selective IgM deficiency, selective deficiency of IgG subclasses, immunodeficiency with hyper IgM, transient hypogammaglobulinemia of infancy, Burkitt's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention relates to PRO proteins and their coding sequences The PRO proteins are useful for diagnosing and treating a B cell related disorder, e.g. X-linked infantile hypogammaglobulinemia, polysaccharide
                                                                            Claim 9;
                                                                                                     mammal.
                                                                                                                New PRO nucleic acid or polypeptide, useful for preparing pharmaceutical composition for diagnosing or treating psou
                                                                                                                                                        WPI; 2004-305105/28.
N-PSDB; ADN04003.
                                                                                                                                                                                                            Bodary
                                                                                                                                                                                                                                                              25-SEP-2002; 2002US-0414006P
                                                                                                                                                                                                                                                                                        25-SEP-2003; 2003WO-US030907
                                                                                                                                                                                                                                                                                                                    08-APR-2004.
                                                                                                                                                                                                                                                                                                                                             WO2004028479-A2
                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                   antipsoriatic;
                                                                                                                                                                                                                                                                                                                                                                                                                              Antipsoriatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADN04004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADN04004 standard; protein; 3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lymphoma, intermediate lymphoma, follicular lymphoma, type II
hypersensitivity, rheumatoid arthritis, autoimmune mediated haemolytic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mediated hemolytic anemia, myasthenia gravis or ankylosing spondylitis.
                                                                                                                                                                                                                                     (GETH ) GENENTECH INC
                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            screening
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42
                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VOKKTETKWVN 52
                                                                         SEQ ID NO 398; 3069pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fig 312; 695pp; English
                                                                                                                                                                                                            Clark H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of therapeutically useful
                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                  gene therapy; psoriasis; diagnosis.
                                                                                                                                                                                                          Jackman J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                           sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                              #197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                                                                                                                                                                                          Schoenfeld J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            reagents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                            Williams
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 3685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                               psoriasis
                                                                                                                                                                                                            ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>,</u>
                                                                                                                                                                                                            Wood WI;
                                                                                                                   ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                   gu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
```

treating psoriasis or a sequence having at least 80% identity to the above sequences. The nucleic acid is useful for preparing a composition for diagnosing or treating psoriasis in a mammal. This sequence corresponds to one of the polypeptides of the invancia-

```
ARBSULT 47
AAU14603
ID AAU147
XX AAU14
XX AAU14
XX BONE
KW Haemm
KW Haemm
KW Haemm
KW WOUNC
XX HOMO
OS HOMO
OS HOMO
OS HOMO
OS HOMO
OS HOMO
XX O5-FI
PR 03-FI
PR 19-JI
PR 19-JI
PR 19-JI
PR N-PSI
XX WPI;
DR WPI;
DR N-PSI
XX WPI;
DR N-PSI
XX CC Inam
XX CC Inam
CC Inam
CC Inam
CC Binti
CC may
CC diso
CC anti
CC diso
CC d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
the prevention, diagnosis and treatment of diseases associated with the disorders associated with decreased expression. For example, to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of the patient's own production of the polypeptide. Additionally, the nucleic polypeptides may be used to produce the polypeptide. Additionally, the nucleic acids may be used to produce the polypeptides, by inserting the nucleic acids into a host cell and culturing the cell to express the protein. The nucleic acid and its complementary sequences may also be used as DNA probes in disgnostic assays to detect and quantitate the presence of the production of antibodies against bone marrow proteins and complementary sequences in as as the presence of anti-bone marrow protein antibodies against bone marrow protein antibodies against bone marrow protein antibodies may also be used as diagnostic agents for detecting the presence of the protein in samples clasmostic agents for detecting the presence of the protein in samples (e.g. by enzyme linked immunosorbant assay (ELISA)). The proteins may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200157187-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bone marrow; diagnostic; therapeutic; gene therapy; antigenic; haematopoiesis; myeloid; lymph cell disorder; tissue regeneration; wound healing; nutritional supplement; immune disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-FEB-2000; 2000US-00496914.
20-JUN-2000; 2000US-00598075.
19-JUL-2000; 2000US-00620325.
30-NOV-2000; 2000US-0250683P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05-FEB-2001; 2001WO-US003782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  severe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel bone marrow polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAU14603 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAU14602-AAU14794 represent novel bone marrow polypeptides of the invention. The proteins and corresponding coding sequences may be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nucleic acids encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
les 11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Œ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001-488875/53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42 VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  combined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drmanac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Page 198-208; 392pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Boyle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  immunodeficiency;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein; 5373 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bone marrow polypeptides,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΥT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 11; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCID.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Asundi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 3685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     useful in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zhou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 48
ADJ68935
ID ADJ68
   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             នន្តន្តន្តន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mitochondrial; human; screening assay; diabetes mellitus;
Huntington's disease; osteoarthritis;
Leber's hereditary optic neuropathy; LHON;
mitochondrial encephalopathy lactic acidosis and stroke;
This invention relates to novel mitochondrial targets that can be used for therapeutic intervention in treating a disease associated with altered mitochondrial function. Specifically, it refers to a method for identifying proteins of the human heart mitochondrial proteome that are useful for drug screening assays, as well as therapeutic targets. The present invention describes a method for identifying such proteins that can be used in the treatment of various diseases associated with altered mitochondrial function including diabetes mellitus, Huntington's disease, osteoarthritis, Leber's hereditary optic neuropathy (LHON), mitochondrial encephalopathy lactic acidosis and stroke (MELAS), myoclonic epilepsy ragged red fibre syndrome (MERRF) or cancer. Accordingly, these compositions have neuroprotective, nootropic, antidiabetic,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 5373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       treatment of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           immune disorders
                                                                                                                                                                                                                                       Identifying a mitochondrial target for drug screening assays and for treating diseases associated with altered mitochondrial function, comprises detecting a modified polypeptide in a sample and correlation.
                                                                                                                                                                                                                                                                                                                                                      Ghosh SS,
                                                                                                                                                                                                                                                                                                                                                                                                                              17-JUN-2002;
20-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-APR-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           myoclonic epilepsy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human heat mitochondrial protein as a therapeutic target SeqID741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADJ68935 standard; protein; 5373
                                                                                                                                                                                                Claim
                                                                                                                                                                                                                                                                                                                                   Warnock DE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            12-APR-2002;
                                                                                                                                                                                                                                                                                                                                                                                  (BUCK-)
                                                                                                                                                                                                                                                                                                                                                                                                (MITO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to regulate haematopoiesis activity, and consequently in the tment of myeloid or lymph cell disorders; in tissue regeneration, as wound healing; as a nutritional supplement; and in treatment ne disorders such as severe combined immunodeficiency (SCID)
                                                                                                                                                                                                                                                                                                        2003-845369/78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42
                                                                                                                                                                                                                                                                                                                                                                                                MITOKOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                  BUCK INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VOKKTETKWVN 52
                                                                                                                                                                                                                              disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                             2002US-0372843P.
2002US-0389987P.
2002US-0412418P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ophthalmological; cytostatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2003WO-US010870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ä
                                                                                                                                                                                                ID NO
                                                                                                                                                                                                                                                                                                                                                    ED,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ny ragged red fibre syndrome; MERRF; cancer;
nootropic; antidiabetic; anticonvulsant; antiarthritic;
                                                                                                                                                                                                                                                                                                                                                                                    AGE RES
                                                                                                                                                                                                741; 180pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54
                                                                                                                                                                                                                                                                                                                                                   Zhang B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                      Gibson BW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ° 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B 4;
                                                                                                                                                                                                                                                                                                                                                    Taylor SW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 5373;
                                                                                                                                                                                                                                              sample and correlating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ö,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

ន្តន្តន្តន

밁 Ś

ì

All manter of the best of the second

```
RESULT 49
ADZ85102
ID ADZ89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                      or covalent bond, or any other intermolecular interaction. The invention further comprises: a method for producing the FHOS-interacting protein; a method for determining whether a compound is capable of modulating an interaction between a first polypeptide (FHOS) or its homolog, derivative of fragments) and a second polypeptide as mentioned in the FHOS-interacting protein; and a method for modulating the function or activity of the FHOS-interacting protein in cells of a specific tissue of a mammal. The FHOS-interacting protein has the activities: antiinflammatory, neuroprotective, cytostatic, cardiovascular-Gen., and antidiabetic. The FHOS-interacting protein is useful for selecting its modulators. The method for modulating the function or activity of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              anticonvulsant, antiarthritic, osteopathic, ophthalmological and cytostatic activities. This polypeptide sequence is a human heart mitochondrial protein of the invention.
treating inflammatory diseases, neur
                                          FHOS-interacting protein in cells of a specific tissue is useful for treating inflammatory diseases, neurodegenerative diseases, cancer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; SEQ ID NO 151; 163pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Novel isolated protein comprising FHOS or its homolog, derivative fragment, interacting with proteins chosen from group of GROUP1 e.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sakamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-APR-2003; 2003US-0459936P
02-APR-2003; 2003US-0460103P
03-JUN-2003; 2003US-0455766P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-MAY-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US2005100966-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cardiovascular disease; diabetes mellitus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FHOS; antiinflammatory; neuroprotective; cytostatic; cardiovascular-Gen.; antidiabetic; inflammation; neurodegenerative disease; cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-JUL-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADZ85102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADZ85102 standard; protein; 5430 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The invention relates to a novel isolated protein comprising a first protein, which is FHOS or its homolog, derivative or fragment, interacting with a second protein chosen from a group of GROUP1, e.g. mRNF23, mERp59 or mBRD7(627), where the interaction is through a comparation of the comparation 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-MAR-2004; 2004US-00805684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SAKA/) SAKAMOTO T. (TAKE/) TAKEDA S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44 VOKKTETKWVN 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5373 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FHOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Takeda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     interacting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mBRD7(627), useful for screening its modulator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteins chosen from group of GROUP1 e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 11; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID 151.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 7;
0.67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 5373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GROUP1, e.g.
    represents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                         activity
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 50
AAU14697
ID AAU14
XX
      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         នន្តន្ត
                           AAU14602-AAU14794 represent novel bone marrow polypeptides of the CC invention. The proteins and corresponding coding sequences may be used in Ct the prevention, diagnosis and treatment of diseases associated with CC inappropriate bone marrow polypeptide expression. For example, to treat CC disorders associated with decreased expression by rectifying mutations or CC deletions in a patient's genome that affect the activity of the CC polypeptides by expressing inactive proteins or to supplement the CC patient's own production of the polypeptide. Additionally, the nucleic cacids may be used to produce the polypeptides, by inserting the nucleic CC acids may be used to produce the polypeptides, by inserting the protein. The nucleic acids into a host cell and culturing the cell to express the protein. The CC mucleic acid and its complementary sequences may also be used as DNA probes in diagnostic assays to detect and quantitate the presence of CC similar nucleic acid sequences in samples, and therefore which patients CC may be in need of restorative therapy. The proteins may also be used as CC antigens in the production of antibodies against bone marrow proteins and to antigens to identify modulators of their expression and activity. The antibodies and antigens and activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-FEB-2000;
20-JUN-2000;
19-JUL-2000;
30-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bone marrow; diagnostic; therapeutic; gene therapy; antigenic; haematopoiesis; myeloid; lymph cell disorder; tissue regenerat wound healing; nutritional supplement; immune disorder; severe combined immunodeficiency; SCID.
anti-bone marrow protein antibodies and antagonists may also be down regulate expression and activity. The antibodies may also be
                                                                                                                                                                                                                                                                                                              Claim 10; Page 124-127;
                                                                                                                                                                                                                                                                                                                                                              Nucleic acids encoding bone marrow polypeptides, useful in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-FEB-2001; 2001WO-US003782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200157187-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel bone marrow polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAU14697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 5430 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FHOS interacting protein for use in the novel protein complex of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          тосат
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Œ,
                                                                                                                                                                                                                                                                                                                                                                                              2001-488875/53
DB; AAS23002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11;
                                                                                                                                                                                                                                                                                                                                                                                                                                             , Boyle BJ,
Drmanac RT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard; protein; 5447 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0250683P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-00598075.
2000US-00620325.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-00496914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                            392pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ΥT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 11;
Pred. No:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #96
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Asundi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9;
0.67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 5430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           regeneration;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ָס
                                                                                                                                                                                                                                                                                                                                                              diagnostic and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                    used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
CC diagnostic agents for detecting the presence of the protein in samples
CC (e.g. by enzyme linked immunosorbant assay (ELISA). The proteins may be
CC used to regulate haematopoiesis activity, and consequently in the
CC treatment of myeloid or lymph cell disorders; in tissue regeneration,
CC such as wound healing; as a nutritional supplement; and in treatment of
CC immune disorders such as severe combined immunodeficiency (SCID)

XX
SQ Sequence 5447 AA;

Query Match
Best Local Similarity 100.0%; Pred. No. 0.67;
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 42 VOKKTFTKWVN 52
[|||||||||||
Db 96 VQKKTFTKWVN 106

Search completed: March 4, 2006, 07:06:15

Job time: 242 secs
```

```
Wordsstzern
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -Scoring "Fabiles oinico
Gapop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Listing first 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          %
Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UniProt_05.80:*
1: uniprot_sprot:*
2: uniprot_trembl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-695-994A-7
220
1 MELQRTSSISGPLSPAYTGQ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2166443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       March
       1114667
122117
1230117
124667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0
60.5
60.5
60.5
                                                                                                                                                                                                                                                                                                                                                                                                               44
                                                                                                                                                                                                                                                                                                                                                                                                                                                     44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4, 2006, 07:02:16; Search time 230 Seconds (without alignments) 674.853 Million cell up
                                                             48
2275
2307
2357
2357
2127
2136
2137
2332
67
                                                                                                                                                                                                                                                       seqs,
     516
2413
794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.7
(c) 1993 - 2006 Biocceleration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapext 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       705528306 residues
 Q9ZZYO MOUSE
Q8C109 MOUSE
Q8C109 MOUSE
Q8C109 MOUSE
Q8LY09 MOUSE
Q8UGT CANFA
Q9QWT/MOUSE
Q6VOGT CANFA
Q5DTR4 MOUSE
Q5VOGT CANFA
Q5DTR2 HUMAN
Q59R3 HUMAN
Q59R3 HUMAN
Q59R3 MOUSE
Q4KRB5 TETMG
Q9QWT3 MOUSE
Q4KRB5 TETMG
Q9R1Y9 MOUSE
Q8U165 RAT
Q9R1Y9 MOUSE
Q8U165 RAT
Q9R1Y9 MOUSE
Q8U165 RAT
Q9R1Y9 MOUSE
Q8U165 RAT
Q9R1Y9 TETMG
Q9RY165 RAT
Q9R1Y9 HUMAN
Q50ZB1 HUMAN
Q8WFB1 HUMAN
Q8WFB HUMAN
Q8WFB HUMAN
Q8WFB TETMG
Q9WWC RAT
Q59FB LHUMAN
Q8WFB TETMG
Q9WWC RAT
Q59FB TETMG
Q9WWC RAT
Q59FB TETMG
Q5YGA TETMG
Q9WWC RAT
Q59FB TETMG
Q5YGA TETMG
Q5YGA TETMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ....QNYKNFNSRRTASDHSWSGM
   09qwj7
06vd99
06xd99
06xd99
059q18
059q18
001082
059e3
0502m3
053r93
0502m3
0502m3
04rep5
09d35
09v165
09v165
09v165
09x199
09x199
09x199
09x199
09x199
09x199
09x199
09x199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q5sq19
Q8ix99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9z2v0
Q8c509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ltd
                                                                           mus musculu
homo sapien
rattus norv
homo sapien
homo sapien
                                                                                                                                                                                                                                                 mus musculu
homo sapien
homo s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mus musculu
mus musculu
mus musculu
homo sapien
   tetraodon n
xenopus lae
                                                                                                                                                                         tetraodon n
tetraodon n
brachydanio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mus musculu
canis famil
                                                                                                                                                                                                                                                                                                                                                                                                                                                 mus musculu
rattus norv
                                                               rattus norv
     \begin{smallmatrix} 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 555 \\ 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                707
2296
129
2257
2299
2302
2302
2303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOTZX11 XENIA
SOTZX11 YENIA
SOTZX11 YENIA
SOFGZ MOUSE
SOFTN2 HUMAN
Q711SOE HUMAN
Q711SOE HUMAN
Q711SOE HUMAN
Q711SOE HUMAN
Q711SOE HUMAN
Q711SOE HUMAN
Q711SOT HUMAN
Q711S
   99xsi
04ruka
04sy67
07zwk4
07zwk4
07zwk4
08seq3
08beq4
08nf9
08nf9
08nf9
08nf9
08s37
08s37
06s38
06s38
06s38
06s37
06s37
06s38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          099mala
099mala
099mala
091ze5
071s02
071s06
08vie5
08vie5
09h254
09f2s2
00963
09f2s2
00963
09f2s2
00963
09f2s2
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00963
00
                                                                                                                                                                                                                                                                                                                                                                                                                                           tetraodon n

tetraodon n

xenopus lae
tetraodon n

caenorhabdi
caenorhabdi
caenorhabdi
caenorhabdi
caenorhabdi
   homo sapien
                                                                                                             homo sapien
mus musculu
rattus norv
homo sapien
homo sapien
mus musculu
mus musculu
                                                                                                                                                                                                                                                                                     homo sapien
homo sapien
homo sapien
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fugu rubrip
homo sapien
homo sapien
homo sapien
rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    brachydanio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    homo sapien
mus musculu
drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     homo sapien
homo sapien
drosophila
drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tetraodon
tetraodon
                                                                             mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                           caenorhabdi
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                     canis famil
                                                                                                                                                                                                                                                                                                                                                                                       caenorhabd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tetraodon n
                                                           rattus norv
                                                                                                                                                                                                                                                 mus musculu
rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pongo pygma
encephalito
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                caenorhabdi
brugia mala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caenorhabdi
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               canis famil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nomo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pongo pygma
homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                homo sapien
entamoeba h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sus scrofa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mus
Bru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mus musculv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sapien
sapien
sapien
```

Result No.

168 170 171 172 172 173 174 176	162 163 164 165 166	154 155 156 157 158 159	146 147 148 150 151 152	1144 144 1443 1443	133 134 135 136 138 139	125 125 126 129 130	1117 1118 119 120 121 122	105 106 106 108 109 110 111 112 113 114
	ນ ບ ບ ບ ບ ບ ພ	ουουουο	νουουουο	••••••	νουουουο	1000	1001111111	:::::::::::::::::::::::::::::::::::::::
			********	*****	*******			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
107 110 169 169 246 301 418 418	3678 3678 5457 7389 7543	3214 3419 3429 3432 3433 3433	732 874 1086 1304 1678 2063 3029	584 603 633	107 124 269 292 314	5301 5301 5301 5301 5301	5430 5430 7354 1064 1884	445551 45551 445572 45686 4574 45686 45686 45686
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2020 B020 E	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	20 B 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ୡୄୄ୷ୠୣୠୣୠୣୠୣ	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	000000000000000000000000000000000000000	2 2 2 2 2 1 P	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
RL31 PRORE AW95 SALSA 2RH4 LEPIC F493 LEPIC F493 LEPIC AVPU4 ORYSA QMA0 ORYSA PUC1 BRARE PUC1 BRARE PUC1 BRARE PE26 BRARE PE26 BRARE	D CHICA D MOUSE TET1 HUMAN AT MOUSE TET2 HUMAN TET2 HUMAN TET2 HUMAN	A1 HŪMAN 5147 RAT 8614 MOUSE UCF5 CANFA RO HŪMAN SZ57 HUMAN T1P2 FUGRU	P612_MOUSE P612_MOUSE 8109_CABEL ZME3_CHICK ZME3_CHICK PWF6_MORSA AEB_MOUSE 6B73_DROME S6Z2_TETING	YBR7 BRARE RCK8 PONPY RCK8 PONPY IG 34 GIBZE IF 30 GIBZE IF 10 GIBZE TOV7 HUMAN	3770 9MUKI 3771 9MURI RQA6 TETNG SYY1 HUMAN CTR5 MOUSE NI CHLNI 5988 PATYE 5987 PATYE	VE DROME VINE DRO	W20 HUMAN W20 HUMAN PLL5 MOUSE PMTB DROME S5L0 CAEBL SDW2 BMENI SDW2 BMENI SDW2 BMENI	Q6S385_MOUSE Q6S377_HUMAN Q6S396_RAT Q6S394_MOUSE Q6S383_HUMAN Q6S385_HAT Q6S380_HUMAN Q6S380_HUMAN Q6S380_MOUSE Q6S3A0_EAT Q7K7B6_CAEEL Q867D9_CAEEL
Q8rl31 Q8aw95 Q72rh4 Q72pu4 Q8f493 Q7xpu4 Q5qmaC Q9puc1 Q6pe26	Q5gn48 Q5gn48 P11531 Q5tbt1 Q91zu6 Q5tbt2 Q61063	Q03001 055147 008614 Q5jcf5 Q5jcf5 P46939 Q58z57 Q7t1p2	Q6p612 Q18109 Q5zme3 Q9pwf6 Q60824 Q86b73 Q486z2	Q6ybr7 Q5rck8 Q9v0m7 Q41634 Q41fb0 Q5t0v7	Q63771 Q63771 Q4rqa6 Q5syy1 Q8c7r5 Q7m3y3 Q7m3y3	Q7kjn8 Q7kjn8 Q8m180 Q9v6v3 Q9v6v4 Q9v6v2 Q811a1 Q5thp1	Q9upn3 Q5vw20 Q4p115 Q9vmt8 Q9vmt8 Q9v510 Q5bdw2 Q7kaj2	Q68385 Q68394 Q68394 Q68383 Q68383 Q68385 Q68385 Q68386 Q68386 Q68386 Q68386 Q68386 Q68386
pro leg	mus sus	homo rattu mus m canis homo homo homo fugu gallu	mus gall more mus dros	brachy pongo pyroco gibber gibber homo s	'/' rattus sp. '/' rattus sp. '/' rattus sp. '/' rattus sp. '/' homo sapien '/' mus musculu '/' chlamys nip '/' patinopecte '/' patinopecte	drosophila drosophila drosophila drosophila drosophila drosophila drosophila mus sp. dys homo sapien	homo saj homo saj mus musi drosoph caenorh aspergi drosoph	nus mu homo si rattus mus mu homo si homo si homo si rattus rattus rattus caenor caenor
salar salar spira spira sativ sativ danio ydanio	rofa spie scull	apie noz secul fami fami fami fami	musculu norhabdi lus gall cone saxa musculu sophila raodon n	danio pygma ccus ella ella apien	sp. don n apien sculu sculu s nip pecte	hhila hhila hhila hila dys	apien apien sculu hila habdi illus	musculu o sapien tus norv musculu o sapien tus norv o sapien tus norv o musculu tus norv nusculu tus norv norhabdi norhabdi musculu
241 242 243 244 245 246 247 248	236 237 238 239 239 240	227 228 229 230 231 232 233 233	221 221 222 223 224 225 226	213 214 215 217 219	22222222222222222222222222222222222222	2001 2000 2001 2003 2003	190 191 192 193 195 196	178 180 181 182 183 184 185 186 188
	, co co co co co co	30 30 30 30 30 30	 	, , , , , , , , , , , , , , , , , , , 	, ထ ထ ထ ထ ထ ထ ထ ထ			ထ ထ ထ ထ ထ ထ ထ ထ ထ ထ ထ ထ ထ
, , , , , , , , , , , ,	, , , , , , , , ,				, , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
2 Q4KRAB TETM 2 Q968Y9 CABE 2 Q16131 CABE 2 Q16133 NEUC 2 Q694WB XENL 2 Q694WB TETM 2 Q18186 HUMAN 2 Q48VN3 TETM 1 DMNA DROME	2 Q4SXZ7 TETN 2 Q7S6C1 HUMA 2 Q7Z6C1 HUMA 2 Q7RYS2 NEUC 2 Q99140 DROM 2 Q6FSE4 CANG 2 Q6FSE4 CANG 2 Q6FSE7 ENTH	1 PERQ1 MOUSE 1 PERQ1 MOUSE 2 Q6Y7W7 HUMA 2 Q6Y7W9 MOUS 2 Q9X908 STRC 2 Q9X3Q6 GIAL 2 Q9HS95 HALS 2 Q9T9R3 DESV	2 Q6DPP7 XENTI 2 Q6DPP7 XENTI 1 ACTN4 HUMAN 1 ACTN4 RAT 2 Q5RCS6 PONP 2 Q6P786 RAT 1 ACTN4 MOUSE 2 Q5LJPI DROM	2 Q6TNWZ EMAKA 1 ACTN2 CHICK 2 Q4ST30_TETNW 2 Q8AX99_BRARI 2 Q7SYEZ BRARI 2 Q7SYEZ BRARI 1 ACTN4_CHICK 2 O6DCS8_XENL	2 Q5VXF1 HUMAL 2 Q5VXF1 HUMAL 2 Q5FW75 MOUSI 2 Q6K3Q4 MOUSI 2 Q6DF05 XENTI 2 Q6IP14 XENTI 2 Q6IP13 XENTI 2 Q6DFU3 XENTI 2 Q6TFU3 XENTI 3 Q6TFU3 XENTI 3 Q6TFU3 XENTI 4 Q6TFU3 XENTI 5 Q6TFU3 XENTI	2 P90545_ENTH: 2 Q4PA36_USTM 2 Q4PA36_TETMQ 2 Q4RZ26_TETMQ 2 Q6NRW6_XENLL 2 Q6P0J5_BRARI 2 Q62744_RAT 1 ACTM2_HUMAN 1 ACTM2_HUMAN	Q571A0 MOUSE Q507A3 ENTH Q50RA3 EVEN Q50RA3 EVEN Q50RA5 CABEI Q0016 FUGRE Q0015 CABEI Q00012 ENTH	2 Q50NF1 ENTHI 2 Q50X8B ENTHI 2 Q4RQU7 TETING 2 Q50W17 ENTHI 2 Q50W17 ENTHI 2 Q518F3 ENTHI 2 Q4W116-ASPFU 2 Q4W116-ASPFU 2 Q14P3-ENTHI 2 Q514P9-ENTHI 2 Q514P9-ENTHI 2 Q50SC7 ENTHI
Q4rrab ter Q968y9 cae Q16131 cae Q694w8 acu Q783c3 ncu Q09472 hom Q5w1b6 hom Q484b6 ter Q48yn3 ter	Q48x27 Q7z6c1 Q7z6c2 Q7zy82 Q99140 Q6f8e4 Q51ed7	Q5h724 Q99mr1 Q6y7w7 Q6y7w9 Q9x008 Q9x008 Q7r3q6 Q7r3q6 Q7r3q6	Q6dfp7 Q43707 Q9qxq0 Q5rc86 Q6p786 P57780 Q51jp1	9611W2 P20111 Q48t30 Q8ax99 Q7sye2 Q90734 Q90734		P90545 Q4pa36 Q4ra6 Q6nrw6 Q6p0j5 Q62744 P3500 Q9ji91	Q571a0 mus Q597g79 dro Q50ra3 ent Q80016 fug Q9n5r5 cae Q6de51 xen Q50d2 ent	OSONII ent. OSONIB ent. OATQU7 tet OSOW17 ent. OSO294 ent. Q518f3 ent. Q4rng2 tet. Q4wi16 asp. O04096 ara O713h6 bran. Q514p9 ent. Q558c7 ent
norhabdi norhabdi norhabdi opus lae rospora o sapien o sapien raodon n raodon n	aodon n sapien ospora ophila ida gla	musculu sapien musculu sapien musculu sptomyce rdia lam obacteri	opus tro to sapien tus norv tus norv tus norv musculu musculu	and Tyd Tyd Tyd	TYGE SUBSTITUTE OF THE SECOND	noel lagg lodd lyd is lus sal	musculu bsophila lamoeba h ju rubrip morhabdi lopus lae lamoeba h lamoeba h	amoeba h raodon n amoeba h amoeba h raodon n raodon n raodon n bergillus bidopsis amoeba h

																																		N	N											2
320	315 316 317	313 314	311 312	310	308	306 307	305	303 304	302	300	299	298	295	295	294	293	291	290	288	287	286	284	283	282	280	279	277	276	275	273	272	271	269	8	67	265	264	797	261	260	255	257	256	254	153	2
17777		77	7 7	7	7	7	7	7	7	7 7	7	7	7 ~	7	7	7	, 7	7	7 7	7	7	, ,	7	,	٦ ر	7	J /J	7	7	J 7	7	7	3	7	7	. 7	7	7	7	7	J ~J	7	ω (D 00	ο α	œ
										•	•																							-		•	3.2	•			•	•		•		
233 237 237 237	224 231 231	217 218	215 215	211 213	191	186 186	185	182	179	175	175	175	175	175	175	174	172	163	158	155	154	150	150	150 150	141	134	133	133	133	125	123	123	115	107	102	93	87	76	46	44	4 2	31	4207	4097	4063	4061
00 G Q Q																																														
Q22685 SIRAW Q729K9 DESVH GIDB MYCPE GGER3 BARHE Q6G5R3 BARHE Q97TUO_CLOAB	NWQ8_C	ZZXO_H HSW4_H	TCN6_H	P4V2 U	4895_R	N220_H	NMS9_G	OXK6_I	H OOXN	QGX2_9	QGX1_9	QGX0_9		QGW7_9	QGW6_9	UGV8 T	WI YEA	xosi_o	CF18 M	F209_M	7PJ4 V	OFNO A	OFM1_A	OFM4 A	ELF9_C	40X9 X	NWH5_S	GGN1_S	GANG S	4174_H	IU78_A	1284 G	29B7_S	PIN6_A	BWIO	gDp9_p	FUF7_L	X9L5 W	6214_9	TSS4 B	TX57_9	WYF3_H	KV70 D	VZQ3_D)2425_C	0M30_C
K9 DESVH K9 DESVH MYCPE R3 BARHE T00 CLOAB	HRVO ACOF RYSA	OMAN ALSA	OMAN OMAN	CEIH	APSA	UMAN	LOVI	915	UMAN	VIRU	VIRU	VIRU	VIRU	VIRU	VIRU	HEAN	ST	RYSA	OUSE	SSDO	IBPA	RAHA	RALP	RAHA DAT.D	UCSA	ENLA	TAAW	TAAR	TAAS	OMAN	ZOVI	IBZE	TRAW	SOSE	NTHI	HYCP	OTCO	HEAT	TAIH	OVIN	BIVA	UMAN	ROME	ROME	AEEL	AEBR
:																																														
00000	ဝုဂ္ပဝ	, S, O, S	ဝှုတွ	ÖÓ	D.C		Q.S	202	o c	οo	ĮQ.	o c	Q Q	, O	Ö	ō iç	ַסייַ כַ	ю, c	gg	iQ.	ō c	, p	, O	, c	0	0.0	Q.C	ıÖ.	o ç	Ģ	Ö	o c	o co	ا	0.0	o.o	00	a.c	01	0.0	o co	io.	0.0	o co	01	ıo i
Q826b5 B Q729k9 d Q8euw9 m Q6g5r3 b Q97tu0 c		7z2x0 h	stane h	∄p4v2 υ Bemg7 c	34895 r	3 5												7xq81 c				70fn0 a	70fm1 a	70fm4 a	6elf9 c	640x9 >	Bnwh5 s	6ggm1 s	foans s	14174 }	4iu78 =	4i284 c	829b7 s	5p1n6 a	50twac	i edpse	9fuf7]	7x915 t	_	9t854 k	9tx57 n	8wyf3 l	7kv70 c	9vzq3	02425	60m30 c
	chromobac saccharum oryza sat	homo sar		ustilago oceanobac	raphanus	omo sa	Ľ.	റ	титесст	infectious	infectious	nfecti	nfecti	infectious	nfecti	nomo sa	saccharomy	oryza s	3		asnoya vibrio	rabido	arabidopsis	rabido	ncumia	хепория	staphylococ	staphyl	staphylococ	tomo sa	zotoba	gibberella	streptomyc	azoarcus	naloarcul entamoeba	hytoph	lotus corni	triticum	5	bos tau	=	homo sa	rosop)	drosophila	caenorh	caenorh
comyce covibr asma nella ridium	comobacte ccharum o za sativ	apien cteri	pien	o ma	888	no sapien	cter	ina	pien	Buo	eno	Bno	Bno	Bno	Buo	ia a	omyc	a sativ	musculu	musculu	goss	pais	Bisde	psis psis	sat	lae	0000	0000	ococ ando	pien	cter	lla	тусе	ds sı	ba h	thor	orni	ım ae	mmun	Burus	Ca.	apien	lila	ila	nabdi	labdi
																																													-	
		-												-	-																			_												
	. w w w	ωωι	ω ω	ω ω	ωι	J W		υω	 ພ ເ		ωι	ա ն	 	<u> </u>		نان در		ω (. ω	ωı	<u>.</u>	. u	<u></u>		ω		- ω	ω,		, ω	ω.		. ω				<u></u>	. w	. س		. w			<u> </u>	· .	د
		00 00 0	യയ	ക ക	00 0	D ~	~ •	376	~I ~	J	372	~	1 O	0	on 0	σ	١o	000	ת מ	onι	359	າຫ	356	ոտ	· UT	352	ເຜ	349	44	4.	4	44	4.	4	340	·	337	ıω	w	ພ ເ	331	w	329	327	326	N
99999	90 88 88	866	8 8 4	82 83	81	79	78	76	75 4	73	72	71	9 6	88	67	n 0	4.6	63 6	61	60	5 6	57	56	4. 1	53	52	50	49	4 7	46	45	44	2 2	41	40	38	36 37	35	34	33 6	31	30	29	27	26	25
99321	88 7 3. 89 7 3. 90 7 3.	86 7 3. 87 7 3.	84 7 3. 85 7 3.	82 7 3. 83 7 3.	81 7 3.	79 7 3.	78 7 3.	76 7 3.	75 7 3.	73 7 3.	72 7 3.	71 7 3.	69 7 3.	68 7 3.	67 7 3.	66 7 3.	64 7 3.	63 7 3.	61 7 3.	60 7 3.	59 7 3.	57 7 3.	56 7 3.	54 7 3.	53 7 3.	52 7 3.	50 7 3.	49 7 3.	47 7 3.	46 7 3.	45 7 3.	44 7 3.	42 7 3.	41 7 3	40 7 3.	38. 7 3.	37 7 3.	35 7 3.	34 7 3.	33 7 3.	31 7 3.	30 7 3.	29 7 3.	27 7 3.	26 7 3.	25 7 3
91 92 7 93 7 3. 95 7 3.	88 7 3.2 89 7 3.2 90 7 3.2	866 7 3.2 87 7 3.2	84 7 3.2 85 7 3.2	82 7 3.2 83 7 3.2	81 7 3.2	79 7 3.2	78 7 3.2	76 7 3.2	75 7 3.2	73 7 3.2	72 7 3.2	71 7 3.2	7 3.2	68 7 3.2	67 7 3.2	66 7 3.2	64 7 3.2	63 7 3.2	61 7 3.2	60 7 3.2	59 7 3.2	57 7 3.2	56 7 3.2	7 3.2	53 7 3.2	52 7 3.2	50 7 3.2	49 7 3.2	48 7 3.2	46 7 3.2	45 7 3.2	44 7 3.2	42 7 3.2	41 7 3.2	40 7 3.2	38. 7 3.2	36 / 3.2 37 7 3.2	35 7 3.2	34 7 3.2	33 7 3.2	31 7 3.2	30 7 3.2	29 7 3.2	27 7 3.2	26 7 3.2	25 7 3.2
91 7 3.2 347 2 92 7 3.2 347 2 93 7 3.2 348 2 94 7 3.2 350 2 95 7 3.2 354 2	88 7 3.2 345 2 89 7 3.2 346 2 90 7 3.2 346 2	86 7 3.2 344 2 87 7 3.2 344 2	84 7 3.2 344 2 85 7 3.2 344 2	82 7 3.2 343 2 83 7 3.2 343 2	81 7 3.2 342 2	7 3.2 341 1	78 7 3.2 340 2	76 7 3.2 340 2	75 7 3.2 340 2	73 7 3.2 340 2	72 7 3.2 335 2	71 7 3.2 333 2	69 7 3.2 327 2	68 7 3.2 327 2	67 7 3.2 327 2	65 7 3.2 324 2 66 7 3.2 325 2	64 7 3.2 322 2	63 7 3.2 321 2	61 7 3.2 316 2	60 7 3.2 316 2	58 7 3.2 314 2 59 7 3.2 316 2	57 7 3.2 314 2	56 7 3.2 313 2	54 7 3.2 310 2	53 7 3.2 309 2	52 7 3.2 300 2	50 7 3.2 297 2	49 7 3.2 296 2	4/ / 3.2 291 2 48 7 3.2 291 2	46 7 3.2 290 2	45 7 3.2 284 2	43 / 3.2 282 2 44 7 3.2 282 2	42 7 3.2 279 2	41 7 3.2 279 2	39 7 3.2 278 2 40 7 3.2 279 2	38. 7 3.2 273 2	36	35 7 3.2 269 1	34 7 3.2 268 2	33 7 3.2 267 2	31 7 3.2 266 1	30 7 3.2 255 2	29 7 3.2 251 2 29 7 3.2 251 2	27 7 3.2 251 2	26 7 3.2 251 2	25 7 3.2 247 2
91 7 3.2 347 2 92 7 3.2 347 2 93 7 3.2 348 2 94 7 3.2 350 2 95 7 3.2 354 2	88 7 3.2 345 2 89 7 3.2 346 2 90 7 3.2 346 2	86 7 3.2 344 2 87 7 3.2 344 2	84 7 3.2 344 2 85 7 3.2 344 2	82 7 3.2 343 2 83 7 3.2 343 2	81 7 3.2 342 2	7 3.2 341 1	78 7 3.2 340 2	76 7 3.2 340 2	75 7 3.2 340 2	73 7 3.2 340 2	72 7 3.2 335 2	71 7 3.2 333 2	69 7 3.2 327 2	68 7 3.2 327 2	67 7 3.2 327 2	65 7 3.2 324 2 66 7 3.2 325 2	64 7 3.2 322 2	63 7 3.2 321 2	61 7 3.2 316 2	60 7 3.2 316 2	58 7 3.2 314 2 59 7 3.2 316 2	57 7 3.2 314 2	56 7 3.2 313 2	54 7 3.2 310 2	53 7 3.2 309 2	52 7 3.2 300 2	50 7 3.2 297 2	49 7 3.2 296 2	4/ / 3.2 291 2 48 7 3.2 291 2	46 7 3.2 290 2	45 7 3.2 284 2	43 / 3.2 282 2 44 7 3.2 282 2	42 7 3.2 279 2	41 7 3.2 279 2	39 7 3.2 278 2 40 7 3.2 279 2	38. 7 3.2 273 2	36	35 7 3.2 269 1	34 7 3.2 268 2	33 7 3.2 267 2	31 7 3.2 266 1	30 7 3.2 255 2	29 7 3.2 251 2 29 7 3.2 251 2	27 7 3.2 251 2	26 7 3.2 251 2	25 7 3.2 247 2
91 7 3.2 347 2 Q16084 92 7 3.2 347 2 Q82VKX 93 7 3.2 348 2 Q6ZWKX 94 7 3.2 350 2 Q6AHQ2 95 7 3.2 354 2 Q51EW2	88 7 3.2 345 2 89 7 3.2 346 2 90 7 3.2 346 2	86 7 3.2 344 2 87 7 3.2 344 2	84 7 3.2 344 2 85 7 3.2 344 2	82 7 3.2 343 2 83 7 3.2 343 2	81 7 3.2 342 2	7 3.2 341 1	78 7 3.2 340 2	76 7 3.2 340 2	75 7 3.2 340 2	73 7 3.2 340 2	72 7 3.2 335 2	71 7 3.2 333 2	69 7 3.2 327 2	68 7 3.2 327 2	67 7 3.2 327 2	65 7 3.2 324 2 66 7 3.2 325 2	64 7 3.2 322 2	63 7 3.2 321 2	61 7 3.2 316 2	60 7 3.2 316 2	58 7 3.2 314 2 59 7 3.2 316 2	57 7 3.2 314 2	56 7 3.2 313 2	54 7 3.2 310 2	53 7 3.2 309 2	52 7 3.2 300 2	50 7 3.2 297 2	49 7 3.2 296 2	4/ / 3.2 291 2 48 7 3.2 291 2	46 7 3.2 290 2	45 7 3.2 284 2	43 / 3.2 282 2 44 7 3.2 282 2	42 7 3.2 279 2	41 7 3.2 279 2	39 7 3.2 278 2 40 7 3.2 279 2	38. 7 3.2 273 2	36	35 7 3.2 269 1	34 7 3.2 268 2	33 7 3.2 267 2	31 7 3.2 266 1	30 7 3.2 255 2	29 7 3.2 251 2 29 7 3.2 251 2	27 7 3.2 251 2	26 7 3.2 251 2	25 7 3.2 247 2
91 7 3.2 347 2 92 7 3.2 347 2 93 7 3.2 348 2 94 7 3.2 350 2 95 7 3.2 354 2	88 7 3.2 345 2 89 7 3.2 346 2 90 7 3.2 346 2	86 7 3.2 344 2 87 7 3.2 344 2	84 7 3.2 344 2 85 7 3.2 344 2	82 7 3.2 343 2 83 7 3.2 343 2	81 7 3.2 342 2	7 3.2 341 1	78 7 3.2 340 2	76 7 3.2 340 2	75 7 3.2 340 2	73 7 3.2 340 2	72 7 3.2 335 2	71 7 3.2 333 2	69 7 3.2 327 2	68 7 3.2 327 2	67 7 3.2 327 2	65 7 3.2 324 2 66 7 3.2 325 2	64 7 3.2 322 2	63 7 3.2 321 2	61 7 3.2 316 2	60 7 3.2 316 2	58 7 3.2 314 2 59 7 3.2 316 2	57 7 3.2 314 2	56 7 3.2 313 2	54 7 3.2 310 2	53 7 3.2 309 2	52 7 3.2 300 2	50 7 3.2 297 2	49 7 3.2 296 2	4/ / 3.2 291 2 48 7 3.2 291 2	46 7 3.2 290 2	45 7 3.2 284 2	43 / 3.2 282 2 44 7 3.2 282 2	42 7 3.2 279 2	41 7 3.2 279 2	39 7 3.2 278 2 40 7 3.2 279 2	38. 7 3.2 273 2	36	35 7 3.2 269 1	34 7 3.2 268 2	33 7 3.2 267 2	31 7 3.2 266 1	30 7 3.2 255 2	29 7 3.2 251 2 29 7 3.2 251 2	27 7 3.2 251 2	26 7 3.2 251 2	25 7 3.2 247 2
91 7 3.2 347 2 Q16081 HUMAN 92 7 3.2 347 2 Q82VK4_NITEU 93 7 3.2 348 2 Q6ZWR1_MOUSE 94 7 3.2 350 2 Q6AHQ2_CAEEL 95 7 3.2 354 2 Q51EW3_ENTHI	88 7 3.2 345 2 Q5ZN06_PSEOL 89 7 3.2 346 2 Q9D4C6_MOUSE 90 7 3.2 346 2 Q569C2_RAT	86 7 3.2 344 2 Q4IVKJ AZQVI 87 7 3.2 344 2 Q92Q29 RHIME	84 7 3.2 344 2 Q9W3J7_DROME 85 7 3.2 344 2 Q9AXB7_ARAI.P	82 7 3.2 343 2 Q4HZE2 GIBZE 83 7 3.2 343 2 O9SO35 BORBU	81 7 3.2 342 2 Q6DH60_BRARE	79 7 3.2 341 1 TRPD BACCR	78 7 3.2 340 2 Q8GKV6_ARATH	76 7 3.2 340 2 Q8GRQ8 ARATH	75 7 3.2 340 2 QBGSW3_ARATH	73 7 3.2 340 2 Q8GRQ9_ARATH	72 7 3.2 335 2 Q5ZGY8_PSEME	70	69 7 3.2 327 2 Q8YNQ8_ANASP	68 7 3.2 327 2 Q8EY39_LEPIN	67 7 3.2 327 2 075FZ9 LEPIC	65 7 3.2 324 2 Q9SPP4 ORYSA	64 7 3.2 322 2 Q4FUC5 9GAMM	63 7 3.2 321 2 015986 PATYE	61 7 3.2 316 2 Q8K838_STRP3	60 7 3.2 316 2 Q5XCZ9_STRP6	58	57 7 3.2 314 2 Q94436_9BIVA	56 7 3.2 313 2 Q8W596 MEDSA	54 7 3.2 310 2 Q50MD9_ENTHI	53 7 3.2 309 2 Q6ZVW9_HUMAN	51 / 3.2 300 2 QOILBI_METAC	50 7 3.2 297 2 Q7Z4C7_HUMAN	49 7 3.2 296 2 Q8VHN9 MOUSE	47 7 3.2 291 2 Q9M140 ARATH	46 7 3.2 290 2 Q9FWX9 ARATH	45 7 3.2 284 2 Q57VJ1_9TRYP	43 / 3.2 282 2 Q54CE8_9ARCH	42 7 3.2 279 2 Q97FC2_CLOAB	41 7 3.2 279 2 Q4Q281 LBIMA	39 7 3.2 278 2 Q7PUE4_ANOGA	38. 7 3.2 273 2 Q4V1B7_BACCZ	36	35 7 3.2 269 1 MIND GUITH	34 7 3.2 268 2 Q6K2H1_ORYSA	32	31 7 3.2 266 1 PPNK1 BACSU	30 7 3.2 255 2 Q86WF6_HUMAN	29 7 3.2 251 2 Q8AF9U_SALFA	27 7 3.2 251 2 Q7CPE8_SALTY	26 7 3.2 251 2 Q57HZ4_SALCH	25 7 3.2 247 2 07Z617 HUMAN
91 7 3.2 347 2 016081 HIMAN Q16081 92 7 3.2 347 2 082VK4_NITEU Q82VK4 93 7 3.2 348 2 Q6ZWR1_MOUSE Q6ZWX1 94 7 3.2 350 2 Q6AHQ2_CAEEL Q6Ahq2 95 7 3.2 354 2 Q51EW3_ENTHI Q51ew3	88 7 3.2 345 2 Q5ZN06_PSEOL Q5ZN06 89 7 3.2 346 2 Q9D4C6_MOUSE Q9d4c6 90 7 3.2 346 2 Q569C2_RAT Q569c2	86 7 3.2 344 2 Q47KK3 AZOVI 87 7 3.2 344 2 Q92Q29 RHIME Q92Q29	84 7 3.2 344 2 Q9W3J7_DROME Q9W3J7 B5 7 3.2 344 2 Q9AXB7_ARALP Q9AXB7	82 7 3.2 343 2 Q4HZE2 GIBZE Q4hze2 83 7 3.2 343 2 Q9S035 BORBU Q9m035	81 7 3.2 342 2 Q6DH60_BRARE Q6dh60	79 7 3.2 341 1 TRPD BACCR Q81gg8	// / 3.2 340 2 Q8GKV6_AKATH Q8GTV6 78 7 3.2 340 2 Q8GS44_ARATH 08gs44	76 7 3.2 340 2 QBGRQB ARATH QBGRQB	75 7 3.2 340 2 D8GSW3_AKAIH Q8GSW3	73 7 3.2 340 2 Q8GRQ9_ARATH Q8grq9	72 7 3.2 335 2 Q5ZGY8_PSEME Q5zgy8	70	69 7 3.2 327 2 Q8YNQ8_ANASP Q8YNQ8	68 7 3.2 327 2 Q8EY39 LEPIN Q8ey39	67 7 3.2 327 2 Q75FZ9 LEPIC Q75fz9	65 7 3.2 324 2 Q9SPP4 ORYSA Q9Spp4 666 7 3.2 328 2 Q9SPP4 ORYSA Q9Spp4	64 7 3.2 322 Q4FUC5_9GAMM Q4fuc5	63 7 3.2 321 2 015986 PATYE 015986	61 7 3.2 316 2 Q8K838_STRP3 Q8K838	60 7 3.2 316 2 Q5XCZ9_STRP6 Q5xcz9	58 7 3.2 314 2 Q5ZH19_PSEME Q5zh19 59 7 3.2 316 2 Q85470_STRPY Q85470	57 7 3.2 314 2 Q94436 9BIVA Q94436	56 7 3.2 313 2 Q8W596 MEDSA Q8W596	54 7 3.2 310 2 Q50MD9_ENTHI Q50md9	53 7 3.2 309 2 Q6ZVW9_HUMAN Q6ZVW9	52 7 3.2 300 2 Q011181_MB1AC Q05161	50 7 3.2 297 2 Q7Z4C7_HUMAN Q7Z4C7	49 7 3.2 296 2 Q8VHN9 MOUSE Q8vhn9	47 7 3.2 291 2 Q9M140 ARATH Q9m140	46 7 3.2 290 2 Q9FWX9 ARATH Q9fwx9	45 7 3.2 284 2 Q57VJ1_9TRYP Q57Vj1	43 / 3.2 282 2 Q54CE8_YARCH Q54CE8 44 7 3.2 282 2 Q5YOM1_9ARCH	42 7 3.2 279 2 Q97FC2_CLOAB Q97fc2	41 7 3.2 279 2 Q4Q281_LBIMA Q4q281	39 7 3.2 278 2 Q7PUE4_ANOGA Q7pue4 40 7 3.2 279 2 O6AHO3_CAEREL O6AHO3	38. 7 3.2 273 2 Q4V1B7_BACCZ Q4v1b7	36	35 7 3.2 269 1 MIND GUITH 078436	34 7 3.2 268 2 Q6K2H1_ORYSA Q6k2h1	33 7 3.2 267 2 Q7QQ37 GLALA Q7QQ37	31 7 3.2 266 1 PPNK1 BACSU 031612	30 7 3.2 255 2 Q86WF6_HUMAN Q86Wf6	29 7 3.2 251 2 Q8XF90_SALTI Q8XF90 E	27 7 3.2 251 2 Q7CPE8_SALTY Q7cpe8	26 7 3.2 251 2 Q57HZ4_SALCH Q57hz4	25 7 3.2 247 2 Q7Z6I7 HUMAN Q7Z6I7
91 7 3.2 347 2 Q16081 HUMAN 92 7 3.2 347 2 Q82VK4_NITEU 93 7 3.2 348 2 Q6ZWR1_MOUSE 94 7 3.2 350 2 Q6AHQ2_CAEEL 95 7 3.2 354 2 Q51EW3_ENTHI	88 7 3.2 345 2 Q5ZN06_PSEOL Q5ZN06 89 7 3.2 346 2 Q9D4C6_MOUSE Q9d4c6 90 7 3.2 346 2 Q569C2_RAT Q569c2	86 7 3.2 344 2 Q47KV3 AZQVI 87 7 3.2 344 2 Q92Q29 RHIME Q92Q29 rhizobi	84 7 3.2 344 2 Q9W3J7_DROME Q9W3J7 B5 7 3.2 344 2 Q9AXB7_ARALP Q9AXB7	82 7 3.2 343 2 Q4HZE2 GIBZE Q4hze2 83 7 3.2 343 2 Q9S035 BORBU Q9m035	81 7 3.2 342 2 Q6DH60_BRARE Q6dh60	79 7 3.2 341 1 TRPD BACCR Q81gg8	// / 3.2 340 2 Q8GKV6_AKATH Q8GTV6 78 7 3.2 340 2 Q8GS44_ARATH 08gs44	76 7 3.2 340 2 Q8GRQ8 ARATH	75 7 3.2 340 2 D8GSW3_AKAIH Q8GSW3	73 7 3.2 340 2 Q8GRQ9_ARATH Q8grq9	72 7 3.2 335 2 Q5ZGY8_PSEME Q5zgy8	70	69 7 3.2 327 2 Q8YNQ8_ANASP Q8YNQ8	68 7 3.2 327 2 Q8EY39 LEPIN Q8ey39	67 7 3.2 327 2 Q75FZ9 LEPIC Q75fz9	65 7 3.2 324 2 Q9SPP4 ORYSA Q9Spp4 666 7 3.2 328 2 Q9SPP4 ORYSA Q9Spp4	64 7 3.2 322 Q4FUC5_9GAMM Q4fuc5	63 7 3.2 321 2 015986 PATYE 015986	61 7 3.2 316 2 Q8K838_STRP3 Q8k838	60 7 3.2 316 2 Q5XCZ9_STRP6 Q5xcz9	58 7 3.2 314 2 Q5ZH19_PSEME Q5zh19 59 7 3.2 316 2 Q85470_STRPY Q85470	57 7 3.2 314 2 Q94436 9BIVA Q94436	56 7 3.2 313 2 Q8W596_MEDSA Q8W596	54 7 3.2 310 2 Q50MD9_ENTHI Q50md9	53 7 3.2 309 2 Q6ZVW9_HUMAN Q6ZVW9	52 7 3.2 300 2 Q011181_MB1AC Q05161	50 7 3.2 297 2 Q7Z4C7_HUMAN Q7Z4C7	49 7 3.2 296 2 Q8VHN9 MOUSE Q8vhn9	47 7 3.2 291 2 Q9M140 ARATH Q9m140	46 7 3.2 290 2 Q9FWX9 ARATH Q9fwx9	45 7 3.2 284 2 Q57VJ1_9TRYP Q57Vj1	43 / 3.2 282 2 Q54CE8_YARCH Q54CE8 44 7 3.2 282 2 Q5YOM1_9ARCH	42 7 3.2 279 2 Q97FC2_CLOAB Q97fc2	41 7 3.2 279 2 Q4Q281_LBIMA Q4q281	39 7 3.2 278 2 Q7PUB4_ANOGA Q7pue4 40 7 3.2 279 2 O6AHO3_CARRI, O6AHO3	38. 7 3.2 273 2 Q4V1B7_BACCZ Q4v1b7	37 7 3.2 272 2 Q9LEG9 JUGNI Q9leq9 juc	35 7 3.2 269 1 MIND GUITH 078436 gu	34 7 3.2 268 2 Q6K2H1_ORYSA Q6k2h1 or	33 7 3.2 267 2 057652 FINGRII 057652 FW	31 7 3.2 266 1 PPNKI BACSU 031612 ba	30 7 3.2 255 2 Q86WF6_HUMAN Q86Wf6 h	26 / 3.2 251 2 Q8XF9U_SALFA Q8XF9U_B 29 7 3.2 251 2 Q5PKV4_SALPA Q5pkv4_s	27 7 3.2 251 2 Q7CPE8_SALTY Q7cpe8	26 7 3.2 251 2 Q57HZ4_SALCH Q57hz4 8	25 7 3.2 247 2 Q7Z6I7 HUMAN Q7Z6I7 h

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	44557 4450 600 460 160	en en en en en e	4444		# # # # # 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	יו עו עו עו עו ע	424 425 426 427 428	4420 420 4221 4221	413 413 415 417	407 408 409 410 411	00044440000000000000000000000000000000
11111111	111111	11111	11111	11111	17777	11111	111111	11111	17777	11111	1111111111
											356 357 357 257 257 257 257 257 257 257 257 257 2
1 APK1B ĀRATH 2 Q7GAG3 ARATH 1 RFIM. YĒAST 2 Q6FJF1 CANGA 2 Q7XAM9—QRYSA 2 Q7XAM9—QRYSA 2 Q7S116 NEUCR 2 Q5B969—EMENI 2 Q7VFD4 HELHP	1 PGK_SULSO Q715A7 ORYSA Q53NF8_ORYSA 2 Q53NF8_ORYSA 2 Q13108_BRARE 2 Q57573_BRARE 2 Q57573_BRARE	QCC4SI YARLI COAT PAV Q75LZ5 ORYSA Q4K7X1 PSEF5 Q4RUE6_TETNG	Q50M31_ENTHI Q5AVII_EMENI Q537T8_NEIME Q537T8_NEIME Q721P2_LISIN Q721P2_LISMF	Q5ZN27 PSEME Q5ZN37 PSEPS Q5ZN37 PSEPS Q54UN5 DICDI Q5ZH46 PSEPS	Q5ZH06_PSEPS Q5ZH06_PSEPS Q6EPA3_9LAMI MJD1_HUMAN Q9AS74_CRYSA	Q7XZQ7 PETCR Q9SXS5 IPOBA Q9ZQS7 IPOBA Q9ZQS6 IPOBA Q9ZQS6 IPOBA Q4YEB4 PAPIA	O23825 IPONI Q9SP53 DAUCA Q4QWS5-9APIA Q4QWS5-9APIA Q8LP21 9SOLA Q96472 IPOPU Q6DV45-CAMSI	Q59170 GENTR Q59170 GENTR Q7XZQ8 PETCR Q4QUS0 9APIA Q4QUR7 CONMC Q4QUR7 CHRVO	Q9ZWRO CITSI Q6BEH2 EUSGR FL3H VITVI Q66ME9 FRAAN Q66MF0 FRAAN	Q56100 9SOLN Q5DWW0_ARATH Q8LBCB_SOLTU Q6SD9_9BACT Q6SQ1599GAMM Q6UCT3_9GAMM Q75Z61_BRARE	FL3H_CALCH FL3H_MATIN QEZVZ3 HUMAN Q5SQ55_HUMAN Q49982 9ASTR Q40344_MEDSA Q42927_MEDSA Q42927_MEDSA Q400R9_DAUCA Q90X21_THEMA PL3H ARATH
P46573 arabidopsis Q7gag3 arabidopsis P30775 saccharomyc Q6fjfl candida gla Q7xam9 oryza sativ Q7s116 neurospora Q5b969 aspergillus Q7vfd4 helicobacte	P50317 sulfolobus Q71sa7 oryza sativ Q53nf8 oryza sativ O13108 brachydanio O57573 brachydanio O93369 brachydanio	Q6C481 yarrowia 11 Q6C481 yarrowia 11 Q9j7z0 pariacoto v Q751z5 oryza sativ Q4k7x1 pseudomonas Q4rue6 tetraodon n	encamoeba aspergillu neisseria listeria i listeria m	Q5zn27 pseudomonas. Q5zn39 pseudomonas Q5zn37 pseudomonas Q54un5 dictyosteli Q5zh46 pseudomonas	pseudomona sinningia homo sapie oryza sati		023825 ipomoea nil Q9sp53 daucus caro Q4qur5 anethum gra Q81p21 nierembergi Q96472 ipomoea pur Q6dv45 camellia si	Qbylby gentlana tr Qbylby gentlana tr Qbyl70 gentlana tr Q7xzq8 petroselinu Q4qus0 pimpinella Q4qur7 conium macu Q7qqd3 chromobacte	Q9zwr0 citrus sine Q6beh2 eustoma gra P41090 vitis vinif Q66me9 fragaria an Q66mf0 fragaria an	056180 solanum pin 05dww0 arabidopsis 0818c8 solanum tub 06sg19 uncultured 06sct3 uncultured 07sz61 brachydanio	Q05963 callistephu Q05965 matthiola i Q6zvz3 homo sapien Q5sqs5 homo sapien Q49982 chrysanthem Q40344 medicago sa Q42927 medicago sa Q42927 daucus caro Q9x221 thermotoga Q9x8818 arabidopsis
535 537 538 539 542 542	ហហហហហ			· · · · · · · · · · · · · · · · · · ·							
0 - 0 - 0 - 0 - 0 - 0	2 2 2 2 2 2 4 2 4 4 4 4 4 4 4 4 4 4 4 4	5 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	520 520 522 522	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	510 511 512	, , , , , , , , , , , , , , , , , , ,	500 500 500 500 500 500 500 500 500 500	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 6 6 6	486 488 489 490	480 482 483 484 485	470 471 472 473 475 476
1111111	111111	7777	77777	11111	1111	1111	1111111	77777	17777	,,,,, ,	11111111111111111111111111111111111111
1111111	J J J J J J J J J J J J J J J J J J J	33333	J J J J J J J J	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11111 1111		J J J J J J J J J J J J J J J J J J J		11111	
7 3.2 549 7 3.2 549 7 3.2 549 7 3.2 552 7 3.2 555 7 3.2 555 7 3.2 555 7 3.2 556	7 3.2 544 7 3.2 545 7 3.2 547 7 3.2 547 7 3.2 548 7 3.2 548	7 3.2 538 7 3.2 539 7 3.2 539 7 3.2 540 7 3.2 543	7 3.2 528	7 3.2 515 7 3.2 515 7 3.2 515 7 3.2 515 7 3.2 525	7 3.2 508 7 3.2 508 7 3.2 510	7 3.2 500 7 3.2 502 7 3.2 505 7 3.2 505 7 3.2 505	7 3.2 496 7 3.2 496 7 3.2 498 7 3.2 499 8 499	7 3.2 476 7 3.2 478 7 3.2 481 7 3.2 482 7 3.2 483	7 3.2 468 7 3.2 468 7 3.2 468 7 3.2 469 7 3.2 470 7 3.2 471	7 3.2 451 7 3.2 453 7 3.2 453 7 3.2 453 7 3.2 453 7 3.2 460	7 3.2 423 7 3.2 423 7 3.2 423 7 3.2 428 7 3.2 428 7 3.2 428 431 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 433 7 7 3.2 443 7 7 7 3.2 443 7 7 7 3.2 443 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
7 3.2 549 2 3.2 549 2 3.2 549 2 3.2 552 2 3.2 555 2 3.2 555 2 3.2 557 2 3.2 557 2 557 2 560 2 560 2	7 3.2 544 2 7 3.2 545 2 7 3.2 547 2 7 3.2 547 2 7 3.2 548 1 7 3.2 548 2	7 3.2 538 1 7 3.2 539 2 7 3.2 539 2 7 3.2 540 2 7 3.2 543 2	7 3.2 529 2 7 3.2 529 2 7 3.2 530 2 534 2 534 2 2	7 3.2 515 4 7 3.2 515 2 7 3.2 515 2 7 3.2 515 2 7 3.2 520 2	7 3.2 507 2 3.2 508 2 3.2 510 2 510 2	7 3.2 501 2 3.2 501 2 3.2 501 2 3.2 502 2 3.2 505 2 3.2 507 2 3.2 507 2 3.2 507 2 3.2 507 2 3.2 507 2 3.2	7 3.2 496 2 7 3.2 496 2 7 3.2 499 2 2 7 99 2 2 7 99 2 2 7 99 2 7 99 2 7 99 2 2 7 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2 2 7 9 9 9 2	7 3.2 476 2 7 3.2 478 2 7 3.2 481 2 7 3.2 481 2 7 3.2 483 2	7 3.2 465 2 7 3.2 468 2 7 3.2 470 2 7 3.2 471 2 7 3.2 471 2 7 3.2 471 2 7 3.2 471 2 7 3.2 471 2 7 3.2 471 2 7 3.2 471 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	7 3.2 451 2 3.2 453 2 3.2 453 2 3.2 453 2 3.2 453 2 3.2 455 2 3.2 460 2 3.2	77777777 22222222222222222222222222222

<u> </u>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	, , , , , , , , , , , , , , , , , , ,	567 568 570 571 572 573 574 576 577 578 578 578 578 578 578	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
444444444		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1111111111111111	, , , , , , , , , , , , , , , , , , ,
				5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
Q4ZZZO PSESY Q4ZZZO PSESY Q873A0_NEUCR Q4K686 PSEFS EFGL MYCTU Q51UI4 MAGGR Q9NUQ0 HUMAN Q73U43_MYCPA Q73U43_MYCPA Q73U43_MYCPA Q73U43_THET2 Q5SIV7_THET8				Q5BCX1_EMENI Q7RVWO_NEUCR Q60786_CAEBR Q60786_CAEBR Q6NVM1_XENTR Q52J72_CHICK Q7TNZ7_RAT Q4FZZ1_RAT Q4GZ28_LEIMA Q8112.9_CAEEL Q4QAZ8_LEIMA Q8112.9_CAEEL Q4GZ28_LEIMA Q8112.9_CAEEL Q4GZ28_LEIMA Q8112.9_CAEEL Q4GZ28_LEIMA Q81275_MCCBO Q4JYWAY4_ASPFU Q7UZT5_MCCBO
arabicopsi pseudomona pseudomona mycobacter magnaporth homo sapie mycobacter neurospora thermus th		rattus nor azotobacte pseudomona pseudomona oryza sati azoarcus s thermotoga homo sapie dermatopha neurospora	១៩៩៤៤៥៩៤៥ មិន ភិប្តី ស្ត្	Obexi aspergillus Olive neurospora Octibe caenorhabdi Octibe caenorhabdi Octibe caenorhabdi Octibe caenorhabdi Octibe caenorhabdi Octibe rattus norv Octibe nus musculu Octibe pseudomonas Octibe pseudomonas Octibe nus musculu Octibe cryptococcu Octibe nus musculu Octibe nus muscu
66666666666666666666666666666666666666	660 670 671 673 674 676 676	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	640 641 6644 665 665 665 665 665 665 665 665 66	617 618 618 620 621 622 623 624 633 633 633 633 633 633
		. ·		
	, , , , , , , , , , , , , , , , , , ,		, , , , , , , , , , , , , , , , , , ,	617 617 618 618 618 618 618 618 618 618 618 618
	, , , , , , , , , , , , , , , , , , ,			617 618 619 619 621 622 622 623 624 624 7 625 627 627 628 627 628 627 628 630 7 3.2 631 7 3.2 631 7 3.2 631 7 3.2 631 7 3.2 633 7 3.2 634 7 3.2 635 7 3.2 637 638 7 3.2 638 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 3.2 639 7 7 7 3.2 639 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8
7 3.2 940 2 7 3.2 947 2 7 3.2 945 2 7 3.2 945 2 7 3.2 955 2 7 3.2 960 2 7 3.2 967 2 968 2 968 2	7 3.2 886 2 2 3 3 3 2 9 14 2 3 3 2 9 19 1 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3	7 3.2 871 2 7 3.2 871 2 7 3.2 875 2 7 3.2 876 2 7 3.2 876 2 7 3.2 876 2 7 3.2 878 2 7 3.2 878 2 880 1	7 3.2 809 1 7 3.2 809 2 7 3.2 812 2 7 3.2 816 2 7 3.2 816 2 7 3.2 824 1 7 3.2 824 1 7 3.2 828 1 7 3.2 842 2 7 3.2 843 2 7 3.2 843 2 7 3.2 857 1 7 3.2 857 1	617 618 7 618 7 619 7 7 620 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
7 3.2 940 2 7 3.2 947 2 7 3.2 945 2 7 3.2 945 2 7 3.2 955 2 7 3.2 960 2 7 3.2 967 2 968 2 968 2	7 3.2 886 2 2 3 3 3 2 9 14 2 3 3 2 9 19 1 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3	7 3.2 871 2 7 3.2 871 2 7 3.2 875 2 7 3.2 876 2 7 3.2 876 2 7 3.2 876 2 7 3.2 878 2 7 3.2 878 2 880 1	7 3.2 809 1 7 3.2 809 2 7 3.2 812 2 7 3.2 816 2 7 3.2 816 2 7 3.2 824 1 7 3.2 824 1 7 3.2 828 1 7 3.2 842 2 7 3.2 843 2 7 3.2 843 2 7 3.2 857 1 7 3.2 857 1	617 618 7 3.2 733 619 7 3.2 739 620 7 3.2 739 621 7 3.2 741 622 7 3.2 745 624 7 3.2 755 624 7 3.2 771 626 7 3.2 771 627 7 3.2 771 628 7 3.2 771 629 7 3.2 779 630 7 3.2 798 631 7 3.2 798 631 7 3.2 798 631 7 3.2 798 632 7 3.2 798 633 7 3.2 798 634 7 3.2 807 639 7 3.2 807 639 7 3.2 807
7 3.2 943 2 OGURAN 7 3.2 940 2 OGC4RO_YARLI 7 3.2 940 2 OGC4RO_YARLI 7 3.2 945 2 O7EUG USNV 7 3.2 948 2 OGBKTTD_DEBHA 7 3.2 948 2 OGBKTTD_DEBHA 7 3.2 955 2 Q75DB7_ASHGO 7 3.2 960 2 OBL671_ORYSA 7 3.2 960 2 OBL671_ORYSA 7 3.2 967 2 OW4FRE_ENTAG 7 3.2 968 2 Q990MS_9VIRU 7 3.2 968 2 Q990MS_9VIRU	7 3.2 886 2 Q9VZ04 DROME 7 3.2 892 2 Q4SC70_TETNG 7 3.2 899 2 Q4SC70_TETNG 7 3.2 899 2 Q7QE23_ANGGA 7 3.2 998 2 Q5QNG6_MOUSE 7 3.2 914 2 Q5QNG6_MOUSE 7 3.2 914 2 Q5QNG6_MOUSE 7 3.2 917 2 Q5THY6_HUMAN 7 3.2 918 2 Q5Y192_HUMAN 7 3.2 918 1 INCE_HUMAN 7 3.2 919 1 INCE_HUMAN 7 3.2 912 2 QBRXPS_ARATH 7 3.2 922 2 QBRXPS_ARATH 7 3.2 922 2 QBRXPS_ARATH	7 3.2 801 2 Q9VLA2 DOME 7 3.2 871 2 Q8VP66 THEYO 7 3.2 871 2 Q8RB6 THETN 7 3.2 876 1 Q8VSF9 DERPT 7 3.2 876 1 MYSP SÄRSC 7 3.2 876 2 Q17951 CAEEL 7 3.2 876 2 Q7TN28 MOUSE 7 3.2 876 2 Q7TN28 MOUSE 7 3.2 877 1 INCE CHICK 7 3.2 878 1 OSBP2 HUMAN 7 3.2 878 1 OSBP2 HUMAN 7 3.2 878 1 OSBP2 HUMAN 7 3.2 878 2 Q5AS58 EMENI 7 3.2 880 1 INCE MOUSE 7 3.2 880 2 Q8PGY9 XANAC	7 3.2 809 1 PBPA_XYLFT 7 3.2 809 2 Q6CGG1 MOUSE 7 3.2 809 2 Q6FARZ-MOUSE 7 3.2 819 2 Q7R118 GIALA 7 3.2 816 2 Q7R118 GIALA 7 3.2 816 2 Q5ZL41_CHICK 7 3.2 816 2 Q9UX13 AGRTS 7 3.2 822 2 Q91288 PLEWA 7 3.2 822 2 Q91288 PLEWA 7 3.2 824 1 GBP_PLAF7 7 3.2 824 1 GBP_PLAF7 7 3.2 824 1 GBP_PLAF7 7 3.2 831 2 Q54MH2 DICDI 7 3.2 843 2 Q54MH2 DICDI 7 3.2 843 2 Q54RH2 DICDI 7 3.2 843 2 Q6AXC9_MOUSE 7 3.2 843 2 Q6AC9_MOUSE 7 3.2 856 2 Q8H1P8 ARATH 7 3.2 857 1 GELA_DICDI 7 3.2 857 1 GELA_DICDI 7 3.2 857 2 Q55CI2 DICDI	617 618 7 618 7 619 7 619 7 620 7 621 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7

	746 747 748 749 750	740 741 742 743 744	734 735 736 737 738	728 729 730 731 732 733	719 720 721 723 724 724	711 711 712 713 714 716 716	7000 7000 7002 7004 7006 7008	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
111111111	77777	177777	77777	111111	11111111	111111111	JJJJJJJJJ	1111111111111
		*******	*****	*****			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
								968 2 968 2 972 2 1 1 2 2 972 2 2 972 2 2 972 2 2 972 2 2 972 2 2 972 2 2 972 2 2 97
Q4P3H6 USTMA Q96TA9 HUMAN Q482D6 TETING Q4S2D6 TETING Q523G6 MAGGR Q5BKU5 HUMAN Q96JM4 HUMAN Q96JM4 HUMAN Q627P2 CAEBR Q627P2 CAEBR Q5TEM5 HUMAN Q637B7 HUMAN	2 Q6AHQ1 CAEEL ITA7 MOUSE 2 Q8BWG4 MOUSE 2 Q7KS05 DROME 2 Q8IMU8 DROME 2 Q8IMU8 DROME 2 Q8KJ29 RHILO	Q8IX12_HUMAN Q5VUD6_HUMAN Q5VUD6_HUMAN Q5C65_DICDI Q65C65_DICDI Q641G3_XENLA Q4IQ90_GIBZE Q4IQ90_GIBZE Q96219_PLAF7	Q54TTB DICDI Q5HZX9 RAT Q5HZX9 TETNG Q4SKZ1 TETNG Q6CH18 MOUSE Q4RVK6 TETNG Q6X935_HUMAN	QBDET STREE Q97QQO_STREN Q97QQO_STREN Q4SPOT_TETNG Q86ZJS_PODAN Q96ZJS_PODAN Q9NV82_HUMAN ITAT_RĀT	Q4WYUG_ASPFU Q4Q5S2_LEIMA Q9NKY1_DROME Q9NKY1_DROME Q6NN85_DROME Q6NN95_DROME Q80TV1_MOUSE CLMN_MOUSE CLMN_MOUSE CREAT_ARACH Q5R614_BRARE	Q54YB5_DICDI CLAN HUMAN CENUQ2 HUMAN Q6NUQ2 HUMAN Q753P3_ASHGO Q5VS68_ORYSA Q5VUI6_HUMAN Q5VUI6_ALMANH Q4XVNZ_PLACH Q4XVNZ_PLACH Q4XVNZ_PLACH	QSU7Y0 9VIRU QSU7Y0 9VIRU QSU7Y4 9VIRU QSU7Y6 9VIRU QSU7Y6 9VIRU QSU7Y0 9VIRU Q4RZV0 TETNG Q56YP1 ARATH Q56YM2 ARATH Q56YM2 ARATH Q56YM2 QARATH	Q990M7 9VIRU Q990M8 9VIRU Q990P3 9VIRU Q990P3 9VIRU Q990P1 9VIRU Q990P1 9VIRU Q4TLU5 9SPHN POLS 1PNVJ Q7TLC2 9VIRU Q82731 9VIRU Q82731 9VIRU Q82731 9VIRU Q82785 9VIRU Q84785 9VIRU Q84785 9VIRU Q84785 9VIRU Q84785 9VIRU
hon hon brond		homo sapie homo sapie dictyostel xenopus la gibberella plasmodium	Q54tt8 dictyosteli Q5hzx9 rattus norv Q4skz1 tetraodon n Q8chl8 mus musculu Q4rvk6 tetraodon n Q6x935 homo sapien	streptococ streptococ streptococ tetraodon podospora homo sapie	Q4wyu6 aspergillus Q4wyu6 aspergillus Q4q5s2 leishmania Q9nky1 drosophila Q6nn85 drosophila Q80tv1 mus musculu Q805w0 mus musculu Q805w0 mus musculu Q82491 arabidopsis Q5rg44 brachydanio	Q54yb5 dictyosteli Q96jq2 homo sapten Q6nuq2 homo sapten Q6nuq2 homo sapten Q753p3 ashbya goss Q5v868 oryva sativ Q5vui6 homo sapten Q04604 arabidopsis Q4xvn2 plasmodium Q6qmQ3 aeqilops ta	QSU/Y0 infectious QSU/Y0 infectious QSU/Y4 infectious QSU/Y4 infectious QSU/Z0 infectious Q4rz/0 tetraodon n Q56yp1 arabidopsis Q55yr0 arabidopsis Q56yr0 arabidopsis Q56yr0 arabidopsis	Q990m7 infectious Q990m8 infectious Q990p3 infectious Q990p1 infectious Q990p1 infectious Q41U5 erythrobact P05844 infectious Q7tLc2 infectious Q81731 infectious Q81765 infectious Q81765 infectious Q81765 infectious Q81765 infectious
825 826 827 830 831 833 833	820 821 823 823	813 814 816 817 818	809 809 810 811	000000000000000000000000000000000000000	8777777	788 788 788 798	22242444	
			1-1-1-1-1-1-1				74.77.77.77.77.77.77.77.77.77.77.77.77.7	7772
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ம ம ம ம ம ம		յալա այա այ	1777777	7777777 3333333	J J J J J J J J J J J J J J J J J J J	<b>111111111</b>	77777777777
			, w w w w w w	1777777 1000000000000000000000000000000	7777777 33333333333	7777777 333333333333333333333333333333		
3.2 2473 2 3.2 2635 2 3.2 2636 2 3.2 2696 2 3.2 2826 2 3.2 2826 2 3.2 2826 2 3.2 3407 2 3.2 3586 2 3.2 3586 2 3.2 3993 2	3.2 24285 3.2 2428 3.2 2429 2 3.2 2441 1 3.2 2442 1 3.2 2442 2	3.2 1943 2 1970 2 3.2 2047 2 3.2 2075 2 3.2 2158 1 3.2 2158 1	3.2 1796 3.2 1830 2 3.2 1898 1 3.2 1902 2 3.2 1902 2	7 3.2 1575 2 7 3.2 1603 2 7 3.2 1603 2 7 3.2 1620 2 7 3.2 1672 2 7 3.2 1672 2	7 3.2 1436 2 7 3.2 1433 2 7 3.2 1433 2 7 3.2 1440 2 7 3.2 1480 2 7 3.2 1497 2 7 3.2 1521 2 7 3.2 1521 2 7 3.2 1532 2	7 3.2 1335 2 7 3.2 1336 1 7 3.2 1336 1 7 3.2 1374 2 7 3.2 1377 2 1407 2 7 3.2 1418 2 2 1418 2 2	7 3.2 1291 2 7 3.2 1292 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1396 1 7 3.2 1316 1 7 3.2 1314 1	7 3.2 1254 2 7 3.2 1255 2 7 3.2 1256 2 7 3.2 1262 2 7 3.2 1265 1 7 3.2 1267 2 7 3.2 1267 2 7 3.2 1268 2 7 3.2 1276 2 7 3.2 1285 2 7 3.2 1285 2
3.2 2473 2 3.2 2635 2 3.2 2636 2 3.2 2696 2 3.2 2826 2 3.2 2826 2 3.2 2826 2 3.2 3407 2 3.2 3586 2 3.2 3586 2 3.2 3993 2	3.2 24285 3.2 2428 3.2 2429 2 3.2 2441 1 3.2 2442 1 3.2 2442 2	3.2 1943 2 1970 2 3.2 2047 2 3.2 2075 2 3.2 2158 1 3.2 2158 1	3.2 1796 3.2 1830 2 3.2 1898 1 3.2 1902 2 3.2 1902 2	7 3.2 1575 2 7 3.2 1603 2 7 3.2 1603 2 7 3.2 1620 2 7 3.2 1672 2 7 3.2 1672 2	7 3.2 1436 2 7 3.2 1433 2 7 3.2 1433 2 7 3.2 1440 2 7 3.2 1480 2 7 3.2 1497 2 7 3.2 1521 2 7 3.2 1521 2 7 3.2 1532 2	7 3.2 1335 2 7 3.2 1336 1 7 3.2 1336 1 7 3.2 1374 2 7 3.2 1377 2 1407 2 7 3.2 1418 2 2 1418 2 2	7 3.2 1291 2 7 3.2 1292 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1299 2 7 3.2 1396 1 7 3.2 1316 1 7 3.2 1314 1	7 3.2 1254 7 3.2 1255 7 3.2 1256 7 3.2 1262 7 3.2 1265 7 3.2 1267 7 3.2 1267 7 3.2 1268 7 3.2 1276 7 3.2 1285 7 3.2 1285

οφοφοφο																				
26622626	896 897, 898 899	894 894	888 889 890	888 888 888 865 865	879 880 881 882	876 877 878	873 874 875	870 871	8 8 8 8 6 6 6 6 5 7 6 5 5	863	8 8 8 6 6 5 5 5 6 5 6 6 6	8 8 8 6 7 6 5 7 6 5	853 853	849 850	847 848	845 846	843	841 841	838	836
• • • • • • • • • • • • • • • • • • •	თ თ თ თ თ ი	തതതത	თთთთ	አ ወ ወ ወ	തതത	തെതെ	<b>ი ი ი</b>		തെത്	<b>ጎ</b> ወ ወ ወ ፡	თთთი	<b>አ</b> ማ ማ (	n on on o	5 6 J	7	7 7 -	J -J -	<b>,</b> , ,	77	7 7
, , , , , , , , , , , , , , , , , , ,	22222	2222	22.77	0000 1777	222 277 277	2.7	2222	2.7	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	22.7		2221								
, o o o o o o o	, o o o o o	5 4 4 8 8 5 4 6 8 8	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	រុសសស	55 52 52	51 51	4 4 4 4 8 8 8 0	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	440		377		30	8797 28 28	8407 8654	6885	4687	4378	4374	4374
Q7VA99 PROMA Q5HGA4 STAAC Q7A100 STAAW Q7A5U6 STAAW Q7A5U6 STAAM Q99UF9 STAAM Q6CH60 YARLI	V5G7 BO 3HK2 XA 3HK2 BU 39P1 ST	SS85 ME TVY0 CO TVY0 OR PLT7 OR TRU3 9V	1031 HU 1086 9V 1075 9H	14A3 PS 17 BOVI 16G3 LE	7MG0 PI VEW0 BA VES8 BA	DSP1_ME CABO_HU JRR7_HU	17G8 YE 17G8 YE 17G8 YE	HAGE SC	13 BOVI	94R9_9H 9XM6_9H 9XM7_9H	1794_9E	RI25 PI	SAC9_TE	NE1 HUN RF96 PI	RTM4_HU	VE2 HUN	BC1_RAT	JG03 MC	SZZI_MOL	WE1_HUN 3222 HI
OMA OMA DAAC DAAW DAAM DAAM	NOR IRPS	STTH SRJK SYSA TIRU	MAN TRU TIRU SPFU	PIN	SIN CSK CSK	MAN MAN	RPE RPE	AYO	IN COMO			AYO ET8	MAN	AYO OYA	MAN	ANG ANG	TAN TAN	IGR	JSE	MAN MAN
QQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ		0000	00000	0000	00500 0550	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2828	0.05 Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q	P 0 0 0	0000	000	500	8225	398	Q Q 5	200	PG	282	Q Q 4	0.0
Q7va99 pr Q7va99 pr Q5hga4 st Q7a100 st Q7a5u6 st Q7a5u6 st Q99uf9 st	7597 bos hk2 xan nt8 bur 19p1 sta	vy0 coryz ht7 oryz ru3 sulf	.Dm/ es ;031 ho ;036 su ;086 su )175 hu	)4a3 ps )815 bo	mg0 pl /ew0 ba /es8 ba	5p1 me ab0 ho	igzo ye iyg8 ye 517 st	ka9 trep vy58 baci 14q6 schi 19n2 plas	ki80 my 13t1 hu 13t71 bo	94r9 hu oxm6 hu oxm7 hu			6493 hom	nf91 hom cf96 pla						
prochloroco prochloroco staphylococ staphylococ staphylococ staphylococ staphylococ yarrowia li	bos taurus bos taurus xanthomonas burkholderi staphylococ	ano neb	escherich homo sap sulfolob human im human im	pseudopleur bos taurus leptospira	plasmodium bacillus cl bacillus cl	methyloco homo sap			t and an	human im	anan	ermo	mo sapien	homo sapie plasmodium	o sap chyda	5.8	rattus no	icetulu	mus	homo sapi
2 11:	nas eri	ממ איר מו	pien bus mmun	eur us	ដូច្ច	pien pien	0000 9000	ma d 18 su 90ma lium	nerpe asma immun urus	immun immun immun	immun immun	the	n en		nio	9 6 6	lorv	ulu us	ulu ulu	1en ien
974 975 976 978 978	969 970 971 972	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	960 961 962	957 958	952 953 954	949 949 950 951	945 946 947	941 942 943	937 938 939 940		931 932 933	928	925	922 923	920 921	918 918	916	913 914	911 912	910
. თ თ თ თ თ თ თ	n on on on o	ስ ጣ ጣ ጣ ጣ ሳ	ກ ທຸດ ດ ດ	ነ ማ ማ ማ ና	<b>ກ ທ ທ ທ</b>	თ თ თ <b>ი</b>	n on on on	.തെതത	തതത	, on on or	n on on o	n on on o	n on on o	ოთთ	თ თ (	n on or	ነ ወነ ወ	ი თ	, തത	თ თ
00000000000000000000000000000000000000	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	00000 0000 1777	5 6 6 2.7 2.7 7	6 6 2.7	0 0 0 0 2 2 2 1 7 7 7	6 6 2 . 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7	6 2.7	5 6 6 6 0 0 2 2 . 7 7 7 7	0 0 0 0 0 2 2 2 1 1 7 7 7	1000 1001 1177	0 0 0 2 2 . 7	6 2.7	n 6 0 2.7	6 2.7	6 2.7	6 2.7	6 2.7
6 0 2 2 7 8 3 2 2 4 8 5 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 81 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 80 2 2 3 7 80 2 2 3 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2	6 2.7 79 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 1 6 2.7 78 2 6 2.7 78 2	6 2.7 78 1 6 2.7 78 1 6 2.7 78 1	6 2.7 76 2 6 2.7 78 2 7 2 7 78 1	6 2.7 74 2 6 2.7 75 2 75 2 76 2	6 2.7 73 2 6 2.7 73 2 6 2.7 74 2	6 2.7 73 2 2 6 2.7 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2	6 2.7 72 2 6 2.7 72 2 7 72 2	6 2.7 71 2	6 6 6 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 69 2	6 2.7 69 2	6 2.7 68 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 1 6 2.7 67 2
6 0 2 2 7 8 3 2 2 4 8 5 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 81 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 80 2 2 3 7 80 2 2 3 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2	6 2.7 79 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 1 6 2.7 78 2 6 2.7 78 2	6 2.7 78 1 6 2.7 78 1 6 2.7 78 1	6 2.7 76 2 6 2.7 78 2 7 2 7 78 1	6 2.7 74 2 6 2.7 75 2 75 2 76 2	6 2.7 73 2 6 2.7 73 2 6 2.7 74 2	6 2.7 73 2 2 6 2.7 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2	6 2.7 72 2 6 2.7 72 2 7 72 2	6 2.7 71 2	6 6 6 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 69 2	6 2.7 69 2	6 2.7 68 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 1 6 2.7 67 2
974 6 2.7 82 2 Q8VH79 MUSSA 974 6 2.7 82 2 Q0VH79 MUSSA 975 6 2.7 83 2 Q7Q2Y6 ANOGA 976 6 2.7 83 2 Q6X484 ORYSA 977 6 2.7 84 2 Q5ECA3 9HIV1 978 6 2.7 85 2 Q5VP42 ORYSA 979 6 2.7 85 2 Q5JJ74 ORYSA	6 2.7 81 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 80 2 2 3 7 80 2 2 3 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2	6 2.7 79 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 1 6 2.7 78 2 6 2.7 78 2	6 2.7 78 1 6 2.7 78 1 6 2.7 78 1	6 2.7 76 2 6 2.7 78 2 7 2 7 78 1	6 2.7 74 2 6 2.7 75 2 75 2 76 2	6 2.7 73 2 6 2.7 73 2 6 2.7 74 2	6 2.7 73 2 2 6 2.7 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2	6 2.7 72 2 6 2.7 72 2 7 72 2	6 2.7 71 2	6 6 6 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 69 2	6 2.7 69 2	6 2.7 68 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 1 6 2.7 67 2
6 2.7 83 2 2 6 2 2.7 85 2 2 2 2 85 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 81 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 80 2 2 3 7 80 2 2 3 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2	6 2.7 79 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 1 6 2.7 78 2 6 2.7 78 2	6 2.7 78 1 6 2.7 78 1 6 2.7 78 1	6 2.7 76 2 6 2.7 78 2 7 2 7 78 1	6 2.7 74 2 6 2.7 75 2 75 2 76 2	6 2.7 73 2 6 2.7 73 2 6 2.7 74 2	6 2.7 73 2 2 6 2.7 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2	6 2.7 72 2 6 2.7 72 2 7 72 2	6 2.7 71 2	6 6 6 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 69 2	6 2.7 69 2	6 2.7 68 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 1 6 2.7 67 2
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6 2.7 81 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 80 2 2 3 7 80 2 2 3 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2 7 80 2	6 2.7 79 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 2.7 78 1 6 2.7 78 2 6 2.7 78 2	6 2.7 78 1 6 2.7 78 1 6 2.7 78 1	6 2.7 76 2 6 2.7 78 2 7 2 7 78 1	6 2.7 74 2 6 2.7 75 2 75 2 76 2	6 2.7 73 2 6 2.7 73 2 6 2.7 74 2	6 2.7 73 2 2 6 2.7 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2 73 2	6 2.7 72 2 6 2.7 72 2 7 72 2	6 2.7 71 2	6 6 6 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 69 2	6 2.7 69 2	6 2.7 68 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 2	6 2.7 67 1 6 2.7 67 2
6 2.7 82 2 QBVH76 MUSSA 6 2.7 82 2 QBVH79 MUSSA 6 2.7 83 2 Q7Q2Y6_ANOGA 6 2.7 83 2 Q5K4B4 QKYSA 6 2.7 84 2 Q5ECA3_9HIV1 6 2.7 85 2 Q5VP42 QKYSA 6 2.7 85 2 Q5JJ74_QKYSA	6 2.7 81 2 Q6IHT2 DROME 6 2.7 81 2 Q93KQ2 YEREN 6 2.7 81 2 Q93KQ2 YEREN 6 2.7 82 2 Q6EPV5 ORYSA 6 2.7 82 2 Q6GVE9 FRAAN 6 2.7 82 2 Q6GVE9 FRAAN	6 2.7 80 2 Q5KW25 XANOR 6 2.7 80 2 Q6ZU34 BACLD 6 2.7 80 2 Q6ZU34 BACLD 6 2.7 80 2 Q4USA5 XANCP 6 2.7 80 2 Q8PBA1 XANCP 6 2.7 80 2 Q8PBA1 XANCP	6 2.7 79 2 Q5GST3 WOLTER 6 2.7 79 2 Q5GST3 WOLTER 6 2.7 79 2 Q4T045_TETNG 6 2.7 80 2 Q656V6 QXXSA 6 2.7 80 2 Q81QTG_QXXSA	6 2.7 78 2 Q7SQM5 9HIV1 6 2.7 79 2 Q6ILZ3_DROME 6 2.7 79 2 Q6ILZ3_DROME 6 2.7 79 2 Q50MV6_ENTHI	6 2.7 78 1 VPR_HV1PV 6 2.7 78 2 Q6EG44 9HIV1 6 2.7 78 2 Q6EG53_9HIV1 6 2.7 78 2 Q77VFG-GHIV1	6 2.7 78 1 VPR HVLB5 6 2.7 78 1 VPR HVLB5 6 2.7 78 1 VPR HVLH2 6 2.7 78 1 VPR HVLH3	6 2.7 76 2 Q8L9X5 ARATH 6 2.7 76 2 Q8L9X5 COXBU 6 2.7 78 1 VPR HVI12 6 2.7 78 1 VDB HVI12	6 2.7 74 2 Q70EI7 HDV 6 2.7 75 2 Q8U397_PYRFU 6 2.7 75 2 Q6CB05_YARLI 6 2.7 76 2 Q7XIJ7_ORYSA	6 2.7 73 2 Q6LCKZ MOUSE 6 2.7 73 2 Q8AYX6-9GAMA 6 2.7 74 2 Q6B8C2 9ACAR 6 2.7 74 2 Q4YF44_PLABE	6 2.7 72 2 Q9DU32 9HIV1 6 2.7 73 2 Q9DU32 9HIV1 6 2.7 73 2 Q8TLZ6 METAC 6 2.7 73 2 Q8NEE9_HUMAN	6 2.7 /2 2 QBLCW/ ARATH 6 2.7 72 2 Q94A69 ARATH 6 2.7 72 2 Q6HR26 BACAN 6 2.7 72 2 Q6HR26 TETMC	6 2.7 71 2 QBUESE AGRTS 6 2.7 71 2 QFVBBPROMM	6 2.7 70 2 Q6NHG3 CORDI 6 2.7 70 2 Q6NHG3 CORDI 6 2.7 70 2 Q6UG85 9VIRU	6 2.7 69 2 Q8PTM2_COREF 6 2.7 69 2 Q8QN69_9PHYC 6 2.7 70 2 C84CTU2_CBACTU	6 2.7 69 2 Q5EP69 ORVSA	6 2.7 68 2 Q5WLQ/ 5HIVI 6 2.7 68 2 Q5VHP7 HALMA 6 2.7 68 2 O7TMSQ SHIPI	6 2.7 67 2 Q81X90 BACAN 6 2.7 67 2 Q6MBB3 PARTW	6 2.7 67 2 Q9VCP3_DROME 6 2.7 67 2 Q8GV38_9POAL	6 2.7 67 2 Q6C3N6 YARLI	6 2.7 67 1 SLYX RHILO 6 2.7 67 2 O97XS5 SULSO
6 0 2 2 7 8 3 2 2 4 8 5 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 7 8 5 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 7 8 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 2.7 81 2 Q5HMZ DROME Q6HhZ 6 2.7 81 2 Q5HYZ DROME Q6HhZ 6 2.7 81 2 Q5HYZ TEREN Q9KQZ 6 2.7 82 2 Q6EPV5 ORYSA Q6epv5 6 2.7 82 2 Q6GVE9 FRAAN Q6epv5	6 2.7 80 2 Q5KW25 XANOR 6 2.7 80 2 Q6ZU34 BACLD 6 2.7 80 2 Q6ZU34 BACLD 6 2.7 80 2 Q4USA5 XANCP 6 2.7 80 2 Q8PBA1 XANCP 6 2.7 80 2 Q8PBA1 XANCP	6 2.7 79 2 Q5GC73 WOLTER Q5GC73 6 2.7 79 2 Q5GC73 WOLTER Q5GC73 6 2.7 79 2 Q4T045_TETNG Q4T045 6 2.7 80 2 Q656V6 QRYSA Q656V6 6 2.7 80 2 Q656V6 QRYSA Q656V6	6 2.7 78 2 Q7SQM5 9HIV1 Q7SQM5 6 2.7 79 2 Q6ILZ3 DROME Q6ilz3 6 2.7 79 2 Q6ILZ3 DROME Q6ilz3 6 2.7 79 2 Q50MV6 ENTHI Q50mV6	6 2.7 78 1 VPR HV1PV P69729 6 2.7 78 2 Q6EG44 9HIV1 Q6eg44 6 2.7 78 2 Q6EG53 9HIV1 Q6eg53 6 2.7 78 2 Q77VF0 QHTV1 Q77VF0	6 2.7 78 1 VPR HVLB5 6 2.7 78 1 VPR HVLB5 6 2.7 78 1 VPR HVLH2 6 2.7 78 1 VPR HVLH3	6 2.7 76 2 Q8L9X5_ARATH Q819X5 6 2.7 76 2 Q83CM2_COXBU Q83cm2 6 2.7 78 1 VPR_HVI12 P69728	6 2.7 74 2 Q70EI7 HDV 6 2.7 75 2 Q8U397_PYRFU 6 2.7 75 2 Q6CB05_YARLI 6 2.7 76 2 Q7XIJ7_ORYSA	6 2.7 73 2 Q6,LCKZ MOUSE Q6,LCKZ 6 2.7 73 2 Q8AYX6_GGAMA Q8AYX6 6 2.7 74 2 Q6,B8CZ_9ACAR Q6,b8CZ 6 2.7 74 2 Q4YF44_PLABE Q4Y£44	6 2.7 72 2 Q9DU32 9HIV1 Q94032 1 6 2.7 73 2 Q8TLZ6_METAC Q8tlZ6 6 2.7 73 2 Q8NEE9_HUMAN Q8nee9 1	6 2.7 /2 QBLCW/ AKATH QBLCW/ 6 2.7 72 Q94A69 AKATH Q94a69 6 2.7 72 QGHR26-BACAN Q6hr26 GANWA Q6hr26 CANWA Q6h	6 2.7 71 2 Q8UFS AGRES 07.08156 6 2.7 71 2 Q708B2 PROMM 07.0852	6 2.7 70 2 Q6NH33 CORDI Q6NH33 6 2.7 70 2 Q6NH35 YIRU Q6NB55	6 2.7 69 2 Q8PTM2_COREF 6 2.7 69 2 Q8QN69_9PHYC 6 2.7 70 2 C84CTU2_CBACTU	6 2.7 69 2 Q51205 CONLE Q51205 6 2.7 69 2 Q5265 CRYSA Q66069	6 2.7 68 2 Q5V4F7 HALMA Q5V4F7 68 2 Q5V4F7 HALMA Q5V4F7 68 3 Q5V4F7 G7V4F7	6 2.7 67 2 Q81X90 BACAN Q81X90 6 2.7 67 2 Q8BB3 BARUW Q6mbb3	6 2.7 67 2 Q9VCP3_DROME Q9vcp3 dros	6 2.7 67 2 Q6C3N6 YARLI Q6C3N6 yar	6 2.7 67 1 SLYX RHILO 6 2.7 67 2 O97XS5 SULSO

```
밁
                               ş
                                                밁
                                                             S
ક
                                                                                      Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                   981
983
984
985
986
987
988
988
990
991
991
993
1000
                                                                                Matches
                                                                                                                                    HSSP; Q15149; 1MB8.

MGI; MGI: 99388; Spnb2.

GO; GO:0005634; C:nucleus; IDA.

GO; GO:0005635; C:plasma membrane; IDA.

GO; GO:0005815; F:protein binding; IPI.

GO; GO:0007182; P:common-partner SMAD prot

GO; GO:0007184; P:SMAD protein nuclear transcerer; IPR001589; Actbind actnin.

InterPro; IPR001589; Actbind actnin.

InterPro; IPR001715; Calponin-like.

Pfam; PF00307; CH; 1.

SMART; SM00033; CH; 1.
                                                                                                                                                                                                                                                                                                                                           Q9Z2V0 MOUSE
Q9Z2V0;
01-MAY-1999
01-MAY-1999
                                                                                                                                                                                                                                                                                                           Beta spectrin homolog.
Name=Spnb2; Synonyms=ELF1;
Mus musculus (Mouse).
                                                                                                                                                                                                                         NUCLBOTIDE SEQUENCE.
STRAIN=C57 Black/6;
Cai T., Yu P., Mishra B., Mishra L.;
Submitted (JUL-1997) to the EMBL/GenBank/DDBJ
EMBL; AF016040; AAD01566.1; -; mRNA.
                                                                                                                                                                                                                                                                           Muridae; Murinae; Mus.
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                              PROSITE; PS00019; ACTININ_1; 1.
PROSITE; PS50021; CH; 1.
SEQUENCE 220 AA; 25529 MW;
                                                                                                                                                                                                                                                                                                                                                                           MOUSE
                                                                                                                                                                                                                                                                                                                                  L-MAY-1999 (TrEMBLrel.
L-MAY-1999 (TrEMBLrel.
L-OCT-2003 (TrEMBLrel.
121
                                                                                220;
                                                                                                                                                                                                                                                                                                                                                                    MOUSE PRELIMINARY;
                61
                               61
                                                μ
                                                                                                                                                                                                                                                                                                                                                                                                                                    თთთთთთთთთთთთთთთთთ
                                                                                        Similarity
                         RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                 MELORTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                        MELORTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
GSHDIVDGNHRLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVS
                RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                    ининининининининини
                                                                                                                                                                                                                                                                                                                                                                                                                                     Euarchontoglires;
                                                                                                                                                                                                                                                                                                     Chordata;
                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                    10,
10,
25,
                                                                                                                                                                                                                                                                                                                                                                                                                                     Y1279 LACAC
Q4YTK7 PLACH
Q44Y8 BACME
Q6MAH2 PARUM
Q4JIM AZOVI
Q9T0Z7 SCAUD
Q6QZB HDV
                                                                                                                                                                                                                                                                                                                                                                                                                                 Q6S7¥5_9HIV1
Q8USS8_9HIV1
Q5JW64_HUMAN
                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ILGI
                                                                                <u>.</u>
                                                                                       Score
Pred.
                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; oglires; Glires; Rodentia; Sciurognathi;
                                                                                                                F68CAB6A1E1F4253 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                            ALIGNMENTS
                                                                                 Mismatches
                                                                                       220; DB 2;
No. 2.5e-218;
                                                                                                                                                                      protein phosphorylation; IDA.
r translocation; IDA.
                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                      databases.
                                                                                                Length
                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                   0497k7
0447k7
0447k8
0448y8
06mah2
06mah2
06qqz8
06qqo0
074774
07\538
07\5184
07\415
07\415
07\415
07\415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bacteriopha
hepatitis d
hepatitis d
hepatitis d
hepatitis d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 plasmodium
bacillus me
parachlamyd
                                                                                <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           methanococc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human immun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lactobacill
                                                                                                                                                                                                                                                                                                                                                                                                                                            human immun
human immun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mus spretus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prochloroco
                                                                                                                                                                                                                                                                                                                                                                                                                                     homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                            caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bordetella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bordetella
                                120
                                                 60
                                                                 60
```

```
RESCONDENIES OF THE SECONDENIES 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Mateuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kadota K., Mateuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kuchi P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Kuchi P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Kuchi P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubi F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Brownstein M.J., Balt C., Fletcher C., Fujita M., Gariboddi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyo-oka K., Mang K.H., Weitz C., Whittaker C., Wilming L.,
RA Hayashizaki Y.;
RA Hayashizaki Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q8C509;
Q8C509;
Q1-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR 2003 (TrEMBLrel. 23, Created)
01-MAR 2003 (TrEMBLrel. 23, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched
Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched
library, clone:A430088M03 product:beta-spectrin 2, non-erythrocytic,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; But
Mammalia; Butheria; Buarchontoglires; Glires; Rodentia;
Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUCLEOTIDE SEQUENCE.
STRAIN=C57BL/60; TISSUB=Thymus;
MEDLINE=99279253; PubMed=10349636; DOI=10.1016/S0076-6879(99)03004-9;
Carninci P., Hayashizaki Y.;
"High-efficiency full-length cDNA cloning.";
NUCLEOTIDE SEQUENCE.
STRAIN-C57BL/6J; TISSUB=Thymus;
MEDLINE=20499374; PubMed=11042159; DOI=10.1101/gr.145100;
MEDLINE=20499374; PubMed=11042159; DOI=10.1101/gr.145100;
Carninci P., Shibata Y., Hayatsu N., Sugahara Y., Shibata
Konno H., Okazaki Y., Muramatsu M., Hayashizaki Y.;
"Normalization and subtraction of cap-trapper-selected cDl
prepare full-length cDNA libraries for rapid discovery of
Genome Res. 10:1617-1630(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-C57BL/6J; TISSUE-Thymus; MEDLINE-21085660; PubMed-11217851; DOI-10.1038/35055500;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     full insert sequence.
                                                                                                                                                                                                                                                                                                                        the RIKEN Genome Exploration Research "Analysis of the mouse transcriptome 60,770 full-length cDNAs.";
Nature 420:563-573(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUCLEOTIDE SEQUENCE.
STRAIN=C57BL/6J; TISSUE=Thymus;
The FANTOM Consortium,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Meth. Enzymol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Name=Spnb2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hayashizaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ional annotation of 409:685-690(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          303:19-44(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                full-length mouse
                                                                                                                                                                                                                                                                                                                                                                                             Research Group
criptome based o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ξ
                                                                                                                                                                                                                                                                                                                                                                                                 on functional annot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          collection.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Euteleostomi;
tia; Sciurognathi;
                                                                              of new
                                                                                                                                                                                                                                                                                                                                                                                                 annotation
                                                                           genes.";
                                                                                                                                                                           Itoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       K. -F.,
                                                                                                                                                                                                                                                                                                                                                                                                    Ģ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
```

```
RESULT 3
Q5SQ19 MOUSE
ID Q5SQ19 M
AC Q5SQ19 7
DT 01-FEB-2
DT 01-FEB-2
DT 10-MAY-2
DE SMECTIN
GN Name-Spn
GS Mus musc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shibata K., Itoh M., Aizawa K., Nagaoka S., Sasaki N., Carninci P., RA Konno H., Akiyama J., Nishi K., Kitsunai T., Tashiro H., Itoh M., RA Yamamoto R., Natsumoto H., Sakaguchi S., Ikogami T., Kashiwagi K., RA Fujiwake S., Inoue K., Togawa Y., Izawa M., Ohara E., Watshiki M., RA Yoneda Y., Ishikawa T., Ozawa K., Tanaka T., Matsuura S., Kawai J., RA Okazaki Y., Muramatsu M., Inoue Y., Kira A., Hayashizaki Y., Muramatsu M., Inoue Y., Kira A., Hayashizaki Y., RIKKEN integrated sequence analysis (RISA) system-384-format Y. Genome Res. 10:1757-1771(2000).
                                                                                                                                                                              밁
                                                                                                                                                                                                    S
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                  닭
                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                            Matches
                                         Q5SQL9_MOUSE
Q5SQL9;
01-FEB-2005 (
01-FEB-2005 (
10-MAY-2005 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Adachi J., Aizawa K., Akimura T., Arakawa T., Bono H., Carninci P. Pukuda S., Furuno M., Hanagaki T., Hara A., Hashizume W., Hayashida K., Hayatsu N., Hiramoto K., Hiraoka T., Hirozane T., Hori F., Imotani K., Ishii Y., Itoh M., Kagawa I., Kasukawa T., Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Kouda M., Koya Kurihara C., Matsuyama T., Miyazaki A., Murata M., Nakamura M., Nishi K., Nomura K., Numazaki R., Ohno M., Ohsato N., Okazaki Y., Saito R., Saitoh H., Sakai C., Sakai K., Sakazume N., Sano H., Sasaki D., Shibata K., Shinagawa A., Shiraki T., Sogabe Y., Tagami Tagawa A., Takahashi F., Takaku-Akahira S., Takeda Y., Tanaka T., Tomaru A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
PROSITE;
PROSITE;
NON_TER
 Spectrin beta 2.
Name=Spnb2; ORFNames=RP23-189P1.1-002;
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00307; CH; 1.
SMART; SM00033; CH; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GO; GO:0005886; C:plasma membrane; IDA.
GO; GO:0005515; F:protein binding; IPI.
GO; GO:0007182; P:common-partner SMAD p
GO; GO:0007184; P:SWAD protein nuclear
InterPro; IPR001589; Actbind_actnin.
InterPro; IPR001715; Calponin-like.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AK079842; BAC37762.1; HSSP; Q15149; 1MB8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tomaru A., Toya T., Yasunishi A., Muramatsu M., Hayashiz Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=C57BL/6J; TISSUE=Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUCLEOTIDE SEQUENCE
STRAIN=C57BL/6J; TI:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GO:0005634; C:nucleus;
                                                                                                                                                                                                        121
                                                                                                                                                                              121
                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                ш
                                                                                                                                                                                                                                                                                                                            ш
                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PS00019;
PS00020;
                                                                                                                                                                                               GSHDIVDGNHRLT
                                                                                                                                                                                                                                                        RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALOFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                 MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PS50021;
                                                                                                                                                                              GSHDIVDGNHRLT
                                                                                                                                                                                                                                      RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                               MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                       155
155 #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                         (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                         60.5%;
llarity 100.0%;
Conservative (
                                                                       (TrEMBLrel.
                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                       AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTININ_1;
ACTININ_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                      18020 MW;
                                                                                                                                                                              133
                                                                                                                                                                                                        133
                                         29,
30,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDA.
                                         Created)
Last sequence
Last anno
                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -; mRNA.
                                                                                                                                                                                                                                                                                                                                                        Score 133; DB 2; Lo
Pred. No. 1.3e-128;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>. . . . </u>
                                                                                                                                                                                                                                                                                                                                                                                                                      E9F58F25CA6D6FD8 CRC64;
                                           sequence u
                                                                                                     2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein phosphorylation; r translocation; IDA.
                                                       update)
                                           update)
                                                                                                                                                                                                                                                                                                                                                                                     Length 155;
                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ۳.
;
                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3
                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                         0
```

```
DRR RTT RAX PRO COCO DE TOTO DE COCO DE TOTO DE COCO DE TOTO DE COCO DE TOTO DE COCO D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 4
Q8IX99_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SORRED DE REPRESENTATION DE PRESENTATION DE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 133
EMBL; AF327441; AAO1
HSSP; Q01082; IBKR.
Ensembl; ENSG0000011
GO; GO:0005856; C:cy
GO; GO:0003779; F:ac
                                                                                                                                                                                                                                                                                                        NUCLEOTIDE SEQUENCE.

MEDLINE=21521960; PubMed=11665863; DOI=10.1385/JMN:17:1:59;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle D.A., Cai T.;
Chen Y., Yu P., Lu D., Tagle 
                                                                                                                                                                                                     cell bodies and interacts schwannomin.";
J. Mol. Neurosci. 17:59-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2003 (TrEMBLrel.
Beta-spectrin 2 isoform
Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q8IX99_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS00019; ACTININ 1;
PROSITE; PS00020; ACTININ 2;
PROSITE; PS50021; CH; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00307; CH; 2.
Pfam; PF00435; Spectrin; 17.
SMART; SM00033; CH; 2.
SMART; SM00150; SPEC; 17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ensembl; ENSMUSG00000020315; Mus musculus. GO; GO:0003779; F:actin binding; IEA. InterPro; IPR001589; Actnin actin bd. InterPro; IPR001715; Calponin act_bd. InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AL731792; CAI24366.1;
EMBL; AL672225; CAI25429.1;
EMBL; AL672225; CAI24366.1;
EMBL; AL731792; CAI25429.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8IX99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phillimore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria; Euarchon
Muroidea; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tromans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Sim hes 133;
embl; ENSG00000115306; Homo sapiens.
GO:0005856; C:cytoskeleton; IEA.
GO:0003779; F:actin binding: IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RITDLYTDLRDGRMLIKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (FEB-2005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE.
B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 (TrEMBLrel. 23,
3 (TrEMBLrel. 23,
3 (TrEMBLrel. 25,
rin 2 isoform 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FEB-2005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                          AAO15362.1; -; mR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata; Craniata; Vertebrata; Euteleostomi; Euarchontoglires; Primates; Catarrhini; Homin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ťo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251156 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                           with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOINED; Genomic DNA.
JOINED; Genomic DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -; Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 133; I
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             بر بر
                                                                                                                                                                                                                                                                                           neurofibromatosis
                                                                                                                                                                   mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genomic_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5128A840C3FD28AC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .6e-127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>.</u>
                                                                                                                                                                                                                                                                                                                              to cerebellar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                       product
                                                                                                                                                                                                                                                                                                                                  Purkinje
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCOCCA DARA DARA DA RACCOCCA DA COCCA DA COCA DA COCCA DA COCA DA COCCA DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 133
                                                 Query Match
Best Local S
Matches 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001589; Actbind_actnin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR002017; Spectrin.
Pfam; PF00307; CH; 2.
Pfam; PF00415; Spectrin; 17.
SMART; SM00033; CH; 2.
SMART; SM00019; SPEC; 17.
SMART; SM00019; ACTININ 1; 1.
PROSITE; PS00021; CH; 2.
PROSITE; PS00021; CH; 2.
SROSITE; PS00021; CH; 2.
SEQUENCE 2155 AA; 251418 MW; 20A91
                                                                                                                                                                     InterPro; IPR001589; Actional actnin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR001715; Calponin-like.
InterPro; IPR001715; Spectrin.
Pfam; PF00307; CH; 2.
Pfam; PF00435; Spectrin; 17.
SMART; SM00033; CH; 2.
SMART; SM00033; CH; 2.
SMART; SM00030; SPEC; 17.
PROSITE; PS000019; ACTNIN 2; 1.
PROSITE; PS00021; CH; 2.
PROSITE; PS00021; CH; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9QWJ7 MOUSE
Q9QWJ7;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE.

STRAIN=(57 Black/6;

Cai T., Yu P., Mishra B., Monga P.S.P., Mishra L.;

Submitted (AUG-1997) to the EMBL/GenBank/DDBJ databases.

EMBL, APO17112; AADO1616.1; -; mRNA.

HSSP; Q01082; 1BKR.

MGI; WGI:98389; Spmb2.

GO; GO:0005634; C:nucleus; IDA.

GO; GO:0005686; C:plasma membrane; IDA.

GO; GO:0005515; P:protein binding; IPI.

GO; GO:0007182; P:common-partner SMAD protein phosphorylation; IDA.

GO; GO:0007184; P:SMAD protein nuclear translocation; IDA.

TITEPONISMAD Protein nuclear translocation; IDA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Ch
Mammalia; Eutheria; Eu
Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 01-OCT-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Non-erythrocyte beta spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Name=Spnb2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       il Similarity
133; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      μ
                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MBLQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
     SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                     2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                     $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Euarchontoglires; Glires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; P
                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60.5%; Score 133; DB 2; L
100.0%; Pred. No. 1.6e-127;
                                                                                                                                                   250928 MW;
                                                 Score 124; DB; Pred. No. 3.2.0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20A91A28EAC0FE8D CRC64;
                                                                                                                                                     872CFEC9C332152C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vertebrata; Euteleostomi;
                                                                                                    DB 2;
                                                                          .2e-118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2155;
                                                                                               Length 2154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                     CRC64;
                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                   ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
     69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                   0
```

```
RESULT 7

Q5DTR4 MOUSE
ID Q5DTR4;

AC Q5DTR4;

DT 10-MAY-2005 (TrEMBLrel. 30, Created)
I 10-MAY-2005 (TREMBLrel. 30, Last sequence update)
I 10-MAY-2005 (TREMBLrel. 30, Last sequence update)
DT 10-MAY-2005 (TREMBLrel. 30, Last annotation update)
DT 10-MAY-2005 (TREMBLrel. 30, Last annotation update)
DT MKIAA4049 protein (Fragment).

GN Name-Spnb2; Synonyms=mKIAA4049;

GN Name-Spnb2; Synonyms=mKIAA4049;

GN Mus musculus (Mouse).

OC Mammalia; Butheria; Euarchontoglires; Glires; Rodentia
OC Mammalia; Butheria; Euarchontoglires; Glires; Rodentia
OC Muridae; Murinae; Mus.
OX NCBI TAXID=10090;

RN NUCLBOTIDE SEQUENCE.

RA Okazaki N., Kikuno R.F., Ohara R., Inamoto S., Nagase'
RA Koga H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 6
Q6VOG7 CANFA
ID Q6VOG7, C
AC Q6VOG7, C
AC Q6VOG7, C
DT 05-JUL-2
DT NONTER
DR SMART; S
DR PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEOTIDE SEQUENCE.

NUCLEOTIDE SEQUENCE.

Mishra S., Sabbah H.N., Undrovinas A.I.;

Mishra S., Sabbah H.N., Undrovinas A.I.;

Submitted (UUL-2003) to the EMBL/GenBank/DDBJ

EMBL; AY356552; AAQ63200.1; -; mRNA.

Ensembl; ENSCAFG00000002744; Canis familiaris.

GO; GO:0003779; F:actin binding; IEA.

InterPro; IPR001589; Actbind actnin.

InterPro; IPR001715; Calponin-like.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QGV0G7_CANFA PRELIMINARY;
Q6V0G7;
Q5-JUL-2004 (TrEMBLrel. 27,
Q5-JUL-2004 (TrEMBLrel. 27,
Q5-JUL-2004 (TrEMBLrel. 27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Beta-spectrin (Fragment).
Canis familiaris (Dog).
Cunis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00019; ACTININ_1;
PROSITE; PS50021; CH; 1.
NON_TER 149 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00307; CH; 1.
SMART; SM00033; CH; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria; Laurasiatheria; Carnivora; Fissipedia; Canidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN
                                                                                                                                                                                                                                                                                                                                                                                                                                         IHCLENVDKALQFLKBQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 AA; 17412 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 97; DB 2; L; Pred. No. 1.9e-91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2281545132DD85CC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149
                                                                                                                                                     Vertebrata; Euteleostomi;
lires; Rodentia; Sciurogna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                           146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 149;
                                 Nagase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                 .
;
                                                                                                                                                 Sciurognathi;
                                 Ohara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96
```

```
DACOOCO DACOOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
Q6XD99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  昂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001589; Actbind_actnin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR001715; Calponin-like.
InterPro; IPR0020217; Spectrin.
Pfam; PF00307; CH; 2.
Pfam; PF00415; Spectrin; 9.
SMART; SM00033; CH; 2.
SMART; SM00035; SPEC; 9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AK220456; BAD90485.1; -
MGI; MGI:98388; Spnb2.
GO; GO:0005634; C:nucleus; ID;
GO; GO:0005886; C:plasma memb;
GO; GO:000515; F:protein bind
GO; GO:0007182; P:common-partt
GO; GO:0007184; P:SMAD protein
                                                                                                                                                                                                                                                                                           Chen Y., Huang C.-H.;
Submitted (FEB-2003) to the EMI
-i- SIMILARITY: Contains 1 PH (
-i- SIMILARITY: Contains 1)
-i- SIMILARITY: AAQ02380.1; -;
EMBL; AY238344; AAQ02380.1; -;
HSSP; Q01082; 1AA22
SWR; Q6XD99; 2194-2299.
SWR; Q6XD99; 2194-2299.
Ensembl; ENSRNOG00000005434; Ra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin;
                                                                                                                                                      GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; CalponIn_act_bd.
InterPro; IPR001849; PH.
InterPro; IPR002017; Spectrin.
InterPro; IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria
Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurogna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-JUL-2004 (TrEMBLrel. 27, 05-JUL-2004 (TrEMBLrel. 27, 05-JUL-2004 (TrEMBLrel. 27, Non-erythroid spectrin beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q6XD99_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (FEB-2005) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Prediction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; MGI:98388; Spnb2.
GO:0005634; C:nucleus; IDA.
GO:0005686; C:plasma membrane; IDA.
GO:0005515; F:protein binding; IPI.
GO:0007182; P:common-partner SMAD p
GO:0007184; P:SMAD protein nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37
SM00033; CH; 2.
SM00233; PH; 1.
SM00150; SPEC; 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             l Similarity
97; Conserv
                                                                 PR00683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS00019; ACTININ_1;
PS00020; ACTININ_2;
PS50021; CH; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the Coding Sequence ucleotide Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AΑ;
                                                                      SPECTRINPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rattus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150490 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequences of Mouse Homologues of KIAA Gene. equences of Mouse KIAA-homologous cDNAs
                                                                                                                                                                                                                                                                                                                                                                                  PH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
Last sequence Last annoted
                                                                                                                                                                                                                                                                                                                                                               -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                Rattus
                                                                                                                                                                                                                                                                                                                                                                                    domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D9E1CD33E6AB299B CRC64;
                                                                                                                                                                                                                                                                                             norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Le
1.5e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translocation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                            databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            phosphorylation; cation; IDA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Randomly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT 9
SPTB2_MOU
   PRESENTATION OF THE PROPERTY O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SONDRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS00019
PROSITE; PS00020
PROSITE; PS50021
PROSITE; PS50003
Actin capping; Acsequence 2358;
                                                                                                                                                                                                                                                              MALIANE-97342712; PubMed-9199409; DOI=10.1006/jmbi.1997.1044; Nilges M., Macias M.J., O'Donoghue S.I., Oschkinat H.; "Automated NOESY interpretation with ambiguous distance restraints: the refined NMR solution structure of the pleckstrin homology domain from beta-spectrin."; Mol min 1917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
10-NAY-2005 (Rel. 47, Last annotation update)
Spectrin beta chain, brain 1 (Spectrin, non-erythroid
(Beta-II spectrin) (Fodrin beta chain).
Name=Sptbn1; Synonyms=Spnb-2, Spnb2, Sptb2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 MOUSE
SPTB2 M
Q62261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertel
Mammalia; Eutheria; Euarchontoglires; Glires;
Muroidea; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Collins M.O., Yu L., Coba M.P., Husi H., Campuzano Blackstock W.P., Choudhary J.S., Grant S.G.; "Proteomic analysis of in vivo phosphorylated syna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-93240985; PubMed=8479293; DOI=10.1016/0169-328X(93)90176-P; Ma Y., Zimmer W.E., Riederer B.M., Goodman S.R.; Ma Y., Zimmer amino acid sequence for brain beta spectrin (beta fodrin): relationship to globin sequences."; Brain Res. Mol. Brain Res. 18:87-89(1993).
                                                                                                             MEDLINE=96030773;
Hyvoenen M., Macia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Structure of the pleckstrin Nature 369:675-677(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Macias M.J.,
Oschkinat H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRUCTURE BY NMR OF 2199-2304.
MEDLINE=94268558; PubMed=8208297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PHOSPHORYLATION SITES SER-1918; SER-2115; SE PubMed=15572359; DOI=10.1074/jbc.M411220200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=93240985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=BALB/c;
                                                           "Structure
                                                                                               Wilmanns M.;
                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                           Mol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; PS0020; AC....

3; PS00020; AC....

E; PS50021; CH; 2.

TE; PS50003; PH DOWAIN; 1.

TE; PS50003; PH DOWAIN; 1.

TOTAL CONTROLL OF THE CONTRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97;
                                                                                                                                                                                                                                                           Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
14:4676-4681 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                        of the binding site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Musacchio
                                                                                                                          Macias
                                                                                                                                                                                                                                                           269:408-422(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lysis of in vivo pho
280:5972-5982(2005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ## ACTININ 1; 1.
0; ACTININ 2; 1.
21; CH; 2.
03; PH DOMAIN; 1.
03; PH DOMAIN; 1.
625285A560/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                       PubMed=7588597;
as M.J., Nilges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44.1%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .08;
                                                                                                                          Nilges M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ponstingl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       homology
                                                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          625285A560453CC8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOI=10.1038/369675a0;
ngl H., Nilges M., Saraste
                                                              inositol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2363
                                                                                                                          Oschkinat
                                                                                                                                                                                         읶
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vertebrata; Buteleostomi;
lires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                            2199-2304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SER-2137
                                                           phosphates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                       H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              synaptic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2358,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          beta-spectrin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                beta
                                                        in a PH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              proteins.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SER-2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
```

```
Cytoskeleton;
DOMAIN
DOMAIN
DOMAIN
17
                                                                                                                                                                                                                                                                                                                                                                                                                        88888
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
DOMAIN
MOD RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                          REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                     Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin;
                                                                                                                                                                                                                                                                                                                                                              GO; GO:0007184; P:SMAD protein nuclear InterPro; IPR001589; Actiin actin bd. InterPro; IPR001715; CalponIn_act_bd. InterPro; IPR00101715; CalponIn_act_bd. InterPro; IPR001849; PH. InterPro; IPR011993; PH type. InterPro; IPR002017; Spectrin. InterPro; IPR001105; Spectrin_PH. InterPro; IPR001105; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IntAct; Q62261;
Ensembl; ENSMUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M74773; AAC42040.1; -; mRNA.
PDB; 1BTN; X-ray; @=2199-2304.
PDB; 1MPH; NMR; @=2199-2304.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This Swiss-Prot entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use as long as its content is in no way modified and this statement is not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     +++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                 PRINTS; PR00683; SPECTRINPH.
PROSITE; PS00019; ACTININ_1;
PROSITE; PS00020; ACTININ_2;
PROSITE; PS50021; CH; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
                                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                                                                                                        PROSITE; PS50021; CH; 2.
                                                                                                                                                                                                 REPEAT
                                                                                                                                                                                                                  REPEAT
                                                                                                                                                                    REPEAT
                                                                                                                                                                             REPEAT
                                                                                                                                                                                      REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   thus candidate for the calcium-dependent movement of the cytoskeleton at the membrane.

SUBUNIT: Like erythrocyte spectrin, the spectrin-like proteins are capable to form dimers which can further associate to tetramers.

SIMILARITY: Belongs to the spectrin family.

SIMILARITY: Contains 2 CH (calponin-homology) domains.

SIMILARITY: Contains 1 PH domain.

SIMILARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                         ; MGI:98388; Spnb2.
GO:0005634; C:nucleus; IDA.
GO:0005886; C:plasma membrane; IDA.
GO:0005815; F:protein binding; IPI.
GO:0007182; F:common-partner SMAD protein phosphorylation; IDA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     interacts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENSMUSG00000020315; Mus musculus.
                                                                                                    820
926
1033
1140
1246
1351
1463
1563
1563
1882
1988
2196
1918
2115
2115
2127
2137
2164
2168
22100
2210
                                                                                                                                                                                               54
173
276
385
499
609
715
                                                                                                                                                                                                                                                                                Actin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fodrin, which seems to be involved in secretion, with calmodulin in a calcium-dependent manner and is
capping;
                                                                                                                                                                                                                                                                                        DOMAIN;
                                                                                                                                                                                                                                                         WAIN; 1.

ping; Actin-binding; Calmodulin-binding;
Phosphorylation; Repeat.

Actin-binding (By similarity).
                                                                                                                                                                            Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
                                                                                        Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                           --
                        Phosphoserine (By similarity).
Phosphoserine (By similarity).
Phosphoserine (By similarity).
                                                                                                                                                                  Spectrin
                                                               Phosphoserine
                                                                                                           12
13
                                                                                                                                                                    87554W2H
                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                        translocation; IDA.
```

```
Ś
      DAG CORRESPONDE TO DESCRIPTION OF THE PROPERTY OF THE PROPERTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
Q5SQL8_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 97
Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 17.
Pfam; PF00435; SpectrrinpH.
SMART; SM00033; CH; 2.
SMART; SM00033; CH; 1.
SMART; SM00233; PH; 1.
SMART; SM00150; SPEC; 17.
PROSITE; PS00019; ACTININ 1; 1.
PROSITE; PS00020; ACTININ 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
TURN
STRAND
TURN
STRAND
HELLX
TURN
STRAND
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q5SQL8 MOUSE PRELIMINARY; PRT; 2363 AA. Q5SQL8; O1-FEB-2005 (TrEMBLrel. 29, Created) O1-FEB-2005 (TrEMBLrel. 29, Last sequence update) 10-MAY-2005 (TrEMBLrel. 30, Last annotation update)
                                                                                                                                                                                                       InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: Contains 1 PH domain.

EMBL; AL731792; CAI24367.1; -; Genomic_DNA.

EMBL; AL672225; CAI24367.1; -; Genomic_DNA.

EMBL; AL672225; CAI24367.1; JOINED; Genomic_DNA.

EMBL; AL672225; CAI24367.1; JOINED; Genomic_DNA.

EMBL; AL731792; CAI25430.1; JOINED; Genomic_DNA.

SMR; O5SQL8; 2199-2304.

ENSEMD1; ENSMUSG00000020315; Mus musculus.
                                                                                                                                                                                                                                                                      InterPro;
InterPro;
                                                                                                                                                                                                                                                                                        GO; GO:0003779; F:actin binding; IEA InterPro; IPR001589; Actnin actin bd InterPro; IPR001715; Calponin_act_bd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tromans A Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse).
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
Muroidea; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spectrin beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Phillimore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Name=Spnb2; ORFNames=RP23-189P1.1-001;
                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                l Similarity
97; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                       IPR002017;
IPR001605;
                                                                                                                                                                                                                                                   IPR001849; PH.
IPR011993; PH_type.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FEB-2005) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (FEB-2005) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44.1%;
                                                                                                                                                                                                     Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274422 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 97; DB; Pred. No. 2.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64C9E4BD26BBC7B8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .7e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ľ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
```

```
RESULT 11
SPTB2 HUM2
ID SPTB2
AC 00108
AC 00108
AC 00108
DT 01-NA
NA
NA
RA HAVE
RA MADLI
RA HAVE
RA HAVE
RA HAVE
RA HAVE
PHOS
RY PHOS
RY MEDLI
RA HAVE
RA LI J
RA MEDLI
RA MEDLI
RA HAVE
RA LI J
RA MEDLI
RA MEDLI
RA MEDLI
RA MEDLI
RA HAVE
RA LI J
RA MEDLI
R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SARR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPTB2 HUMAN STANDARD; PRT; 2364 AA. 001082; 066837; Q16057; 01-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 10-MAY-2005 (Rel. 47, Last annotation update) Spectrin beta chain, brain 1 (Spectrin, non-erythroid (Beta-III) pectrin) (Forman
                                                                                                                                                                                                                                                                                                                                                      PubMed=15302935; DOI=10.1073/pnas.0404720101;
Beausoleil S.A., Jedrychowski M., Schwartz D.
Li J., Cohn M.A., Cantley L.C., Gygi S.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chang J.G., Scarpa A., Eddy R.L., Byers M.G., Harr Morrow J.S., Watkins P., Shows T.B., Forget B.G., "Cloning of a portion of the chromosomal gene and fodrin, the nonerythroid form of beta-spectrin.", genomics 17:287-293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS50021; CH; 2.

PROSITE; PS50003; PL DOMAIN; 1.

Actin capping; Actin-binding; Cytoskeleton.

SEQUENCE 2363 AA; 274223 MW; 221362054E64BB8C
                                           Carugo K.D.,
"Crystal str
                                                                                                                                                         "Large-scale characterization of HeLa cell nuclear phosphoproteins.", Proc. Natl. Acad. Sci. U.S.A. 101:12130-12135(2004).
                                                                                                                                                                                                                                                                             PHOSPHORYLATION SITES
                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=20267884; PubMed=10806113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Skeletal muscle;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE OF 2087-2168 (ISOFORM SHORT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE OF 293-1544.
MEDLINE=94010920; PubMed=8406479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            beta-spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human)
Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Name=SPTBN1; Synonyms=SPTB2;
                                                                                       MEDLINE=97307247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hu R.J., Watanabe M., Bennett V.; "Characterization of human brain cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=92406787;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 110
                                                                                                               CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                     structure
uct. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                 Banuelos S., Saraste M.; ucture of a calponin homology domain."; Biol. 4:175-179(1997).
                                                                                                                                                                                                                                                                                                                           113:2023-2034 (2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267:18715-18722(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=1527002;
                                                                                       PubMed=91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44.1%; Scu.
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata; Craniata; Vertebrata; Euteleon
Euarchontoglires; Primates; Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ISOFORM LONG)
                                                                                                                                                                                                                                                                           SER-2128; SER-2138;
                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              k; Pred. No. 2.70
                                                                                                             ANGSTROMS)
                                                                                                             QF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  encoding the general isoform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.7e-90;
                                                                                                             173-280
                                                                                                                                                                                                                                                                             SER-2165 AND
                                                                                                                                                                                                                          D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Harris A.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                                                                                                                                                                                                                               Elias
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        beta
                                                                                                                                                                                                                               m
                                                                                                                                                                                                                                                                             SER-2169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chain
                                                                                                                                                                                                                               Villen J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
```

```
DOMAIN
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                   PRINTS; PR
PROSITE; P
                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIM; 102.00,
GO; GO:0008091; C:spectrin; TAS.
GO; GO:0003779; F:actin binding; TAS.
GO; GO:0003709; F:structural constituent
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin_act_bd.
    REPEAT
REPEAT
REPEAT
                                                                                                                                                                         DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PDB; 1AA2; X-ray; @=173-280.
PDB; 1BKR; X-ray; A=172-280.
SMR; Q01082; 2200-2305.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: Belongs to the spectrin famil
-!- SIMILARITY: Contains 2 CH (calponin-homol
-!- SIMILARITY: Contains 1 PH domain.
-!- SIMILARITY: Contains 17 spectrin repeats.
                                                                                                                                                                                                                                                                                                                                              Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; A44159; A44159.
PIR; A47213; A47213.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M96803; AAA60580.1; -; mRNA.
EMBL; S65762; AAB28324.1; -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Banuelos S., Saraste M., Carugo K.D.; "Structural comparisons of calponin homology domains:
                                                                                                                                                                                                                 Calmodul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HGNC; HGNC:11275; SPTBN1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ensembl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Structure 6:1419-1431(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  actin binding.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=99036861; PubMed=9817844; DOI=10.1016/S0969-2126(98)00141-5;
Banuelos S., Saraste M., Carugo K.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLOGRAPHY (1.1 ANGSTROMS) OF 173-281
                                                                                                                                                                                                                                   3D-structure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cytoskeleton at the membrane.
SUBUNIT: Like erythrocyte spectrin, the s
capable to form dimers which can further
The short form cannot bind to the axonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Swiss-Prot entry is copyright. It is produveen the Swiss Institute of Bioinformatics European Bioinformatics Institute. There a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FUNCTION: Fodrin, which seems to be involved in seinteracts with calmodulin in a calcium-dependent notement thus candidate for the calcium-dependent movement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Name=Short;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Event=Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AJ005694; CAA06678.1; -; mRNA.
AJ238723; CAB91088.1; -; Genomic_DNA.
                                                                                                                                                                                                                                               ; PR00683; SPECTRINPH.
1; PS00019; ACTININ 1;
18; PS00020; ACTININ 2;
18; PS50021; CH; 2;
18; PS50021; PH_DOMAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IsoId=Q01082-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IsoId=Q01082-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             long as its
                                                                                                                                                                                                             lin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                          IPR002017;
IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENSG00000115306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR011993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR001849;
    1
54
173
276
276
285
385
499
609
609
609
820
926
                                                                                                                                                                                                                               Actin
    275
158
275
384
498
608
714
819
925
1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 content is in no
                                                                                                                                                                                                                                                                                                                                                                                                    PH.
PH_type.
Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                 Cytoskel
                                                                                                                                                                                                                                 capping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence=VSP_000720, VSP_000721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
                                                                                                                                            Actin-binding (b CH 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the spectrin family
Spectrin
Spectrin
Spectrin
                                                                        Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                       Actin-binding; Alternative splicing; eton; Membrane; Phosphorylation; Repeactin-binding (By similarity).
                                                          Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (calponin-homology) domains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Named isoforms=2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ctrin, the spectrin-like procan further associate to telethe axonal protein fodaxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               te. There are no restrictions of the many modified and this statement
    87654321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of cytoskeleton;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       produced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            secretion,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    implications
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           proteins a tetramers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outstation -
stions on its
atement is not
                                                                                                                                                                                                             Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
```

```
RESULT 12
Q559R3 HUMAN PRELIMINARY;
AC Q59R3;
AC Q59R3;
DT 10-MAY-2005 (TrEMBLrel. 30,
DT 10-MAY-2005 (TrEMBLrel. 30,
DT 10-MAY-2005 (TrEMBLrel. 30,
DT 10-MAY-2005 (TrEMBLrel. 30,
DE Spectrin, beta, non-erythro
OS Homo sapiens (Human).
OC Editorin, beta, con-erythro
OK Homo.
OK Mammalia; Eutheria; Euarcho
OK MOBI TaxID=9606;
RN (I]
RP NUCLEOTIDE SEQUENCE.
RC TISSUE=Brain;
RA Totoki Y., Toyoda A., Taked
RA Ohara O., Nagase T., Kikuno
RT "None Title.";
RL Submitted (MAR-2005) to the
CC -!- SIMILARITY: Contains 1
DR EMBL, AB209748; BAD32985.1;
DR SMR; Q59ER3; 2213-2318.
                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REPEAT
DOMAIN
MOD RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                 HELIX
TURN
HELIX
HELIX
HELIX
TURN
HELIX
HELIX
HELIX
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
REPEAT
REPEAT
Totoki Y., Toyoda A., Takeda T., Sakaki Y., Ta
Ohara O., Nagase T., Kikuno F.R.;
"None Title.";
Submitted (MAR-2005) to the EMBL/GenBank/DDBJ
-- SIMILARITY: Contains 1 PH domain.
EMBL, BAB09748; BAD02985.1; -; mRNA.
EMBL, BAB09748; ABD02985.1; -; mRNA.
                                                                                                                                  10-MAY-2005 (TrEMBLrel. 30, Created)
10-MAY-2005 (TrEMBLrel. 30, Last sequence update)
10-MAY-2005 (TrEMBLrel. 30, Last annotation update)
10-MAY-2005 (TrEMBLrel. 30, Last annotation update)
Spectrin, beta, non-erythrocytic 1 isoform 1 variant
Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VARSPLIC
                                                                                                                                                                                                                                          110
                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                              50
                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                                                                    97;
                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                          IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146
                                                                                                                                                                                                                                                     IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                               DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                        DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1882
1988
2197
1918
2115
2115
2138
2165
2165
                                                                                                                                                                                                                                                                                                                                                          1411
174
187
191
203
206
217
222
227
230
253
263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2169
                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1245
1462
1562
1562
1662
1681
1775
1881
1775
1987
2307
1918
2307
1918
2128
2128
2128
2138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1411
                                                                                                                                                                                                                                                                                                                                                                 186
189
192
202
204
219
224
224
277
277
                                                                                                                 Chordata; Craniata; Vertebrata; Euteleostomi; Euarchontoglires; Primates; Catarrhini; Homin
                                                                                                                                                                                                                                                                                                                            44.1%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                          274631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phosphoserine.

Phosphoserine.

Phosphoserine.

Phosphoserine.

WissTVDTSEMVNGATEQRTSSKESSPIP -> VS

NYKNFNSRRTASDQPWSGI (in isoform Sh
/FTIda-VSP 000720.

Missing (In isoform Short).

/FTIda-VSP 000721.

H -> D (in Ref. 2).
                                                                                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                            Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Phosphoserine.
Phosphoserine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Phosphoserine
Phosphoserine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Phosphoserine.
                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                          0122DB3DF25872CC CRC64;
                                                                                                                                                                                            2377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.
110.
12.
13.
14.
15.
17.
                                                                                                                                                                                                                                                                                                                             2 B
                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                            7e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (в
Ву
                                                          Tanaka
                                                                                                                                                                                                                                                                                                                    0
                              databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       similarity)
similarity)
                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                    Indels
                                                         Α.,
                                                                                                                                             (Fragment).
                                                                                                                                                                                                                                                                                                                                       2364;
                                                         Yokoyama
                                                                                                                   Hominidae;
                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VSYRSQTYQ
                                                                                                                                                                                                                                                                                                                  Gaps
                                                          .
                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                 96
                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
```

```
Q53R99 HUMAN
Q53R99 HUMAN
Q53R99 HAG
Q53R9 HAG
Q53R9 HAG
Q53R9 HAG
Q63R9 HAG
Q63R9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001605; Spectrin_

pfam; pF00307; CH; 2.

pfam; pF00169; PH; 1.

Pfam; pF00163; Spectrin; 17.

PFINTS; PR00683; SPECTRINPH.

SMART; SM00033; CH; 2.

SMART; SM00033; CH; 2.

SMART; SM0023; PH; 1.

SMART; SM00215; SPEC; 17.

PROSITE; PS000019; ACTININ_2; 1

PROSITE; PS00021; CH; 2.

PROSITE; PS00003; PH_DOMAIN; 1
                      submitted (APR-2005) to the EMBL/GenBank/DDBJ

-- SIMILARITY: Contains 1 PH domain.

EMBL, AC093110; AAV24229.1; -; Genomic_DNA.

SMR; Q53R99; 2150-2255.

G0; G0:0003779; F:actin binding; IEA.

InterPro; IPR001589; Actnin actin_bd.

InterPro; IPR001715; Calponin_act_bd.

InterPro; IPR001749; PH.

InterPro; IPR001149; PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Actin ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GO; GO:000
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kozlowicz A., Spalding "The sequence of Homo s Submitted (AUG-2001) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-SEP-2005 (TrEMBLrel. 31, 13-SEP-2005 (TrEMBLrel. 31, 13-SEP-2005 (TrEMBLrel. 31, 13-SEP-2005 (TrEMBLrel. 31, Hypothetical protein SPTBN1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini; Homin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q53R99_HUMAN
Q53R99;
                                                                                                                                                                                                                                                                                                                          Waterston
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                   Waterston
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                             Wilson R.K.
                                                                                                                                                                                                                                                                      NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Name=SPTBN1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002017;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GO:0003779; Fractin binding; IBA
erPro; IPR001589; Actnin actin_bd.
erPro; IPR001715; Calponin_act_bd
erPro; IRR001849; PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       capping; Actin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  l Similarity
97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEREAVQXKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                   (JAN-2002)
                                                                                                                                                                                                                                                                                                                             (FEB-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2377
                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.1%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Spectrin_PH
                                                                                                                                                                                                                                                                                                                             ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           276170
  Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J L., Mulvaney E.;
sapiens BAC clone RP11-564H16.";
to the EMBL/GenBank/DDBJ database
                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 97; DB 2; Le
;; Pred. No. 2.8e-90;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ¥W;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence up Last annotation (Fragment).
                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>سر سر</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E497320876298877 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               databases
                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 2377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

```
Q502M3 BRZ
Q502M3 BRZ
Q502M3 BRZ
ID Q502M
AC Q502M
AC Q502M
DT 13-SH
DT 13-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RC TISSUE-Olfactory epithelium;

RX MEDLINE-22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;

RX Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hong L.,

RA Carpinci P., Farmer A.A., Rubin G.M., Hong L.,

RA Scapleton M., Soares M.B., Bonaldo M.F., Casvant T.L., Scheetz T.E.,

RA Scapleton M.J., Ugdin T.B., Toshiyuki S., Carninci P., Prange C.,

RA Brownstein M.J., Ugdin T.B., Toshiyuki S., Carninci P., Prange C.J.,

RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,

RA Raha S.S., Loquellano N.A., Peters G.J., Malek J.A., Gunaratue P.H.,

RA Richards S., Mocley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

RA Bosak S.A., Mocley R.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

RA Villalon D.K., Muzny D.M., Sodergren B.J., Lu X., Gibbs R.A.,

RA Villalon D.K., Muzny D.M., Sodergren B.J., Lu X., Gibbs R.A.,

RA Pahey J., Helton E., Ketteman M., Madan A., Gadrigues S., Sanchez A.,

RA Rodriguez A.C., Grimwood J., Schwutz J., Myers R.M.,

RA Rodriguez A.C., Grimwood J., Schwutz J., Myers R.M.,

RA Schnerch A., Schein J.B., Jones S.J.M., Marra M.A.;

"Generation and initial analysis of more than 15,000 full-length human

"Generation and initial analysis of more than 15,000 full-length human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00435; Spectrin; 17.
PRINTS; PR00683; SPECTRINPH.
SMART; SM00033; CH; 2.
SMART; SM00033; PH; 1.
SMART; SM00150; SPEC; 17.
PR0SITE; PS000019; ACTININ 1; 1.
PROSITE; PS000020; ACTININ 2; 1.
PROSITE; PS00003; PH DOWAIN; 1.
PROSITE; PS50003; PH DOWAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Actin ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brachydanio rerio (Zebrafish) (Danio rerio).
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q502M3_BRARE
Q502M3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF00307; CH; Pfam; PF00169; PH; Pfam.
                                                             TISSUE=Olfactory epithelium;
NIH MGC Project;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Name=LOC553451;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-8EP-2005 (TrEMBLrel. 31, Last sequence update)
13-SEP-2005 (TrEMBLrel. 31, Last annotation update)
LOC553451 protein (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-SEP-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BRARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
ted (MAY-2005) to the BC095643; AAH95643.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      capping; Actin-binding; Hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRI 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRI
                                                                                                                                                                                         cDNA sequences."
l. Acad. Sci. U.S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2314 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Spectrin_PH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268716
                                                                                                                                                                                         U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X
EMBL/GenBank/DDBJ databases
-; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 96;
Pred. No.
                                                                                                                                                                                      99:16899-16903 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9C49E79CFAD22081 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2; Le
2.9e-89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                    human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
```

```
RESULT

OR RESULT

OR RESULT

DIT 133

밁
                                               S
                                                                                                    밁
                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RA Jaillon O., Aury J.M., Brunet F., Petit J.L., Stange-Thomann N.,
RA Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A.,
RA Micaud S., Jaffe D., Fisher S., Lutfalla G., Dossat C., Segurens B.,
RA Nicaud S., Jashanubatt M., Levy M., Boudet N., Castellano S.,
RA Dasilva C., Salanoubatt M., Levy M., Boudet N., Castellano S.,
RA Anthouard V., Jubin C., Castelli V., Katinka M., Vacherie B.,
RA Biemont C., Skalli Z., Cattolico L., Poulain J., De Berardinis V.,
RA Cruaud C., Duprat S., Brottier P., Coutanceau J.P., Gouzy J.,
RA Parra G., Lardier G., Chapple C., McKernan K.J., McEwan P., Bosak S.,
RA Rellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
RA Kindblad-Toh K., Birren B., Nusbaum C., Kahn D., Robinson-Rechavi M.,
RA Laudet V., Schachter V., Quetier F., Saurin W., Scarpelli C.,
Wincker P., Lander E.S., Weissenbach J., Roest Crollius H.;
"Genome duplication in the teleost fish Tetraodon nigroviridis reveals
It the early vertebrate proto-karyotype.";
Nature 431:946-957(2004).
                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON TER
                                                                                                                                                                                                                                                                                                                                                                                 NUCLEOTIDE SEQUENCE.
Genoscope; Whitehead Institute Centre for Genome Research;
Submitted (FEB-2004) to the EMBL/GenBank/DDBJ databases.
-!- CAUTION: The sequence shown here is derived from an
EMBL/GenBank/DDBJ whole genome shotgun (WGS) entry whi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tetraodon nigroviridis (Green puffer).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostom
Actinopterygii; Neopterygii; Teleostei; Buteleostei; Neoteleost.
Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;
Tetradontoidea; Tetraodontidae; Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-SEP-2005 (TrEMBLrel. 31, 3-SEP-2005 (TrEMBLrel. 31, 13-SEP-2005 (TrEMBLrel. 31, 13-SEP-2005 (TrEMBLrel. 31, who
                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q4REP5_TETNG
Q4REP5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=99883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORFNames=GSTENG00035677001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _TETNG
                                                                                                                                                                                                                                                                                                                                          preliminary data.; CAAE01015123; C
141
                                                  128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128
                                                                                                      81
                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66;
                                                                                                                                                                                                          65; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                               GNHRL 132
                                                                                                                                     DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVD 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GNHRLT 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVD 139
GNHRL
                                                                                                      DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              977
977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
,
145
                                                                                                                                                                                                                                                                                                                    AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            977
                                                                                                                                                                                                                                                                                                                    CAG13137.1;
258437 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              113881 MW;
                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                  29.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               whole genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
                                                                                                                                                                                                          Score 65; DB; Pred. No. 2.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 o;
                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 66;
Pred. No:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5CC81C094A588D01 CRC64;
                                                                                                                                                                                                                                                                                                                 -; Genomic DNA.
04A0C7751E04AED9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               shotgun
                                                                                                                                                                                                                                   DB 2; L
. 2.9e-57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence.
                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                            Length 2235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                  entry which
                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Neoteleostei;
                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

RESULT 16 Q9QW73_9MURI

```
ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9QW73 9MURI PRELIMINARY;
Q9QW73;
NUCLEOTIDE SEQUENCE.

STRAIN-C57BL/6J; TISSUB-Spinal ganglion;

MEDLINE-2108560; PubMed=11217851; DOI=10.1038/35055500;

MEDLINE-2108560; PubMed=11217851; DOI=10.1038/35055500;

Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,

Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka II.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Kadota K., Matsuda H.A., Aahburner M., Batalov S., Casavant T.,

Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush (
Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio (

Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio (

STRAIN-C57BL/6J; TISSUB-SD01; DOI=10.1038/35055500;

Ishii Y.,

Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Saito R., Kondo M., Wagner L., Washio (

Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio (

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Saito T., Okazaki Y., Gojobori T., Bono H., 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-2003 (TrEMBLrel. 23, Created)
01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN f
enriched library, clone:D130061A22 product:beta-spectrin
erythrocytic, full insert sequence. (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QBBQ35_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00435; Spectrin; 3. SMART; SM00150; SPEC; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zimmer W.E., Ma Y.P., Goodman S.R.;
"Identification of a mouse brain beta-spectrin cDNA and distribution of its mRNA in adult tissues.";
Brain Res. Bull. 27:187-193(1991).
InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE.
MEDLINE=92076240; PubMed=1742606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalia; Eutheri
Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurogna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Beta-spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
                                                                                                                                                                                                                                                                                Carninci P., Hayashizaki Y.; "High-efficiency full-length cDNA Meth. Enzymol. 303:19-44(1999).
                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE.
STRAIN=C57BL/6J; TISSUE=Spinal ganglion;
MEDLINE=99279253; PubMed=10349636; DOI=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17
MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLFAEQGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                - PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   332
332 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mu8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata; Craniata; Vertel
Euarchontoglires; Glires;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 62;
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5C9F36C840DDEEC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                     cloning.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOI=10.1016/0361-9230(91)90066-S;
                                                                                                                                                                                                                                                                                                                                                     DOI=10.1016/S0076-6879(99)03004-9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIKEN full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    263
```

```
RC STRAIN-ESTBLIGG; TISSUB-Spinal ganglion;
RA Adachi J., Aizawa K., Akimura T., Arakawa T., Bono H., Carninci P.,
RA Adachi J., Aizawa K., Akimura T., Arakawa T., Bono H., Carninci P.,
RA Hayashida K., Furuno M., Hanagaki T., Hara A., Hashizume W.,
RA Hayashida K., Ishii Y., Itoh M., Kagawa I., Kasukawa T.,
RA Hori F., Imotani K., Ishii Y., Itoh M., Kagawa I., Kasukawa T.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Kouda M., Koya S.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Nakamura M.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Koya S.,
RA Katoh H., Kawai J., Kojima Y., Kondo S., Konno H., Kasukawa T.,
RA Sasaki D., Shibata K., Shinagawa A., Shiraki T., Sogabe Y., Tagami M.,
RA Sasaki D., Takahashi F., Takaku-Akahira S., Takeda Y., Tanaka T.,
RA Tagawa A., Takahashi F., Takaku-Akahira S., Takeda Y., Tanaka T.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hayashizaki Y.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hasaka T.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hasaka T.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Hasaka T.,
RA Tagawa A., Toya T., Yasunishi A., Muramatsu M., Nakazume N., Sano H.,
RA Tagawa A., Takaku T., Muramatsu M., Nakazume N., Sano 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G., Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F., Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M., Gustinoich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H., Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P., Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N., Sakaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F., Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L., Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S., Layachizeki Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=C57BL/6J; TISSUE=Spinal ganglion;
MEDLINE=20530913; PubMed=11076861; DOI=10.1101/gr.152600;
MEDLINE=20530913; PubMed=11076861; DOI=10.1101/gr.152600;
Shibata K., Itoh M., Alzawa K., Nagaoka S., Sasaki N., Carninci P.,
Konno H., Akiyama J., Nishi K., Kitsunai T., Tashiro H., Itoh M.,
Sumi N., Ishii Y., Nakamura S., Hazama M., Nishine T., Harada A.,
Yamamoto R., Matsumoto H., Sakaguchi S., Ikegami T., Kashiwagi K.,
Pujiwake S., Inoue K., Togawa Y., Izawa M., Ohara E., Watchiki M.,
Yoneda Y., Ishikawa T., Ozawa K., Tanaka T., Matsuura S., Kawai J.,
Okazaki Y., Muramatsu M., Inoue Y., Kira A., Hayashizaki Y.,
"RIKEN integrated sequence analysis (RISA) system-384-format
sequencing pipeline with 384 multicapillary sequencer.";
Genome Res. 10:1757-1771(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=C57BL/6J; TISSUB=Spinal ganglion;
MEDLINE=2049374; PubMed=1042159; DD16;
Carninci P., Shibata Y., Hayateu N., Sugahara Y., Shibata K., It
Konno H., Okazaki Y., Muramatsu M., Hayashizaki Y.;
"Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new ge
Genome Res. 10:1617-1630(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The FANTOM Consortium, the RIKEN Genome Exploration Research Group "Analysis of the mouse transcriptome based o 60,770 full-length cDNAs.";
Nature 420:563-573(2002).
                                                 InterPro; interPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=C57BL/6J; TISSUE=Spinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Functional annotation of a full-length mouse cDNA collection.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hayashizaki Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                409:685-690(2001).
                    IPR011993; PH_type.
IPR002017; Spectrin.
IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ganglion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         p Phase I & II Team;
on functional annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genes.")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Itoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ģ,
```

```
PT NOON TO SHAPE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QRUITT QR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 19
Y9 MOUSE
Q9R1Y9 MOUSE [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILT 18

165 RAT

QBVI65 RAT

QBVI65;

QBVI65;

Q1-MAR-2002

Q1-MAR-2002

Q1-MAR-2002
                                                                                                                                                                                                                                  Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata;
Mammalia; Eutheria; Euarchontoglires; Gl
Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000 (TrEMBLrel. 13,
01-MAY-2000 (TrEMBLrel. 13,
01-MAY-2000 (TrEMBLrel. 13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9R1Y9;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (DEC-1999) to the EMBL/GenBank/DDBJ (EMBL, AF218849; AAL56652.1; -; mRNA.
Ensembl; ENSRNOG000000005434; Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SMART; SM00233; PH; 1.
SMART; SM00150; SPEC; 2.
Cai T., Mishra L.;
Submitted (FEB-1998)
EMBL; AF047686; AAD1:
NON_TER 1
                                                                                                                                                                                                                                                                                                                                                            Name=Elf3
                                                                                                                                                                                                                                                                                                                                                                                        ELF3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUCLEOTIDE SEQUENCE Cai T., Yu P.;
                                                                                                                   STRAIN=C57BL;
                                                                                                                                                  NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Beta II spectrin-short isoform (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS50003; PH_DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TER
                                                                                                                                                                                                                                                                                                                                                                                        (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 RLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLPAEQGS 190
                                                                                                                                                                                                          TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF00435;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PR00683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TKVSEEAESQQWDTSKGDQVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TKVSEEAESQQWDTSKGDQVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PR:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RITTLELLEVRROOEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLPAEQGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. 20, (TrEMBLrel. 20, (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA; 7408 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA; 56537 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spectrin;
                           1998) to the AAD15747.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECTRINPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28.2%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27.3%;
                                                                                                                                                                                                                                                                                                                                                                                                             Created)
Last seq
Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                     EMBL/GenBank/DDBJ databases
-; Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 62;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 60;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CEAEC8D69417E3B0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BBEA4D95709BF5F0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                             sequence up
                                                                                                                                                                                                                                                              a; Vertebrata; Euteleostomi;
Glires; Rodentia; Sciurogna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.4e-53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۰,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                 Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
RESULT
Q4SUVB
ID Q4
AC Q4
DT 13
DT 13
DT 13
DT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 20
Q4SRS6_TETING
ID Q4SRS6_TETING 1
AC Q4SRS6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALD COCCERRENT READER READER COCCERRENT READER C
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÖS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A Jaillon O., Aury J.M., Brunet F., Petit J.L., Stange-Thomann N.,
A Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A.,
A Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A.,
A Micaud S., Jaffe D., Fisher S., Lutfalla G., Dossat C., Segurens B.,
A Dasilva C., Salanoubat M., Levy M., Boudet N., Castellano S.,
A Dasilva C., Salanoubat M., Levy M., Boudet N., Vacherie B.,
A Anthouard V., Jubin C., Castelli V., Katinka M., Vacherie B.,
B iemont C., Skalli Z., Cattolico L., Poulain J., De Berardinis V.,
B Biemont C., Skalli Z., Cattolico L., Poulain J., De Berardinis V.,
B Cruaud C., Duprat S., Brottier P., Coutanceau J.P., Gouzy J.,
A Cruaud C., Duprat S., Brottier P., McKernan K.J., McGwan P., Bosak S.,
A Parra G., Lardier G., Chapple C., McKernan K.J., McGwan P., Bosak S.,
A Fellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Kellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Kellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Lindblad-Toh K., Birren B., Wisbaum C., Kahn D., Robinson-Rechavi M.,
A Lindbrad V., Schachter V., Quetier F., Sauxin W., Scarpelli C.,
A Mincker P., Lander E.S., Weissenbach J., Roest Crollius H.;
Tenoame duplication in the teleost fish Tetraodon nigroviridis reveals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 48
                                                      13-SEP-2005
13-SEP-2005
13-SEP-2005
                                                                                                                                                        04SUV8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genoscope; Whitehead Institus Submitted (FEB-2004) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tetraodon nigroviridis (Green puffer).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;
Tetradontoidea; Tetraodontidae; Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-SEP-2005 (TrEMBLrel. 31, Created)
13-SEP-2005 (TrEMBLrel. 31, Last sequence
13-SEP-2005 (TrEMBLrel. 31, Last annotati
Chromosome undetermined SCAF14494, whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the early vertebrate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORFNames=GSTENG00013771001;
Tetraodon nigroviridis (Green
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=99883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAUTION: The sequence shown here is derived from an EMBL/GenBank/DDRT whele continued the continued from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        preliminary data.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               145
                                                                                                                                                                                                                                                                                                                                                                        219
                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAE01014494;
                                                                                                                                                                                             TETNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rly vertebrate proto-karyotype.";
431:946-957(2004).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLPAEQGSPR
                                                                                                                                                                                                                                                                                                                                                                        LPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                    LPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVSQNGLPAEQGSPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
(TrEMBLrel. 31, Created)
(TrEMBLrel. 31, Last sequence update)
(TrEMBLrel. 31, Last annotation update)
undetermined SCAF13839, whole genome shotgun sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAF96656.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Institute Centre for Genc
to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .Score 47; pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome shotgun (WGS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 48;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BD9CFFB2C4D1632A CRC64;
                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51646A219509AD94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genomic_DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2275
                                                                                                                                                                                                 2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2; L.
5. 1.2e-38;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for Genome Research;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome shotgun sequence
                                                                                                                                                                                             ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .6e-41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 2275;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Segurens B., no S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        y J.,
P., Bosak S.,
                                                                                                                                                                                                                                                                                                                                                                        265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
Q9DGM6
ID Q9
AC Q9
DT 01
DT 01
DT 01
DT 01
Na
OS Bx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOLITAR BERETA PER BER
                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Adallon O., Aury J.M., Brunet F., Petit J.L., Stange-Thomann N.,
A Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A.,
A Micaud S., Jaffe D., Fischer S., Lutfalla G., Dossat C., Segurens B.,
A Micaud S., Jaffe D., Fischer S., Lutfalla G., Dossat C., Segurens B.,
A Dasilva C., Salanoubat M., Levy M., Boudet N., Castellano S.,
A Anthouard V., Jubin C., Castelli V., Katinka M., Vacherie B.,
A Anthouard V., Jubin C., Cattolico L., Poulain J., De Berardinis V.,
A Blemont C., Skalli Z., Cattolico L., Poulain J., De Berardinis V.,
A Cruaud C., Duprat S., Brottier P., Coutanceau J.P., Gouzy J.,
A Farra G., Lardier G., Chapple C., McKernan K.J., McEwan P., Bosak S.,
A Ra Kallis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Kellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Kallis M., Schachter V., Quetier F., Saurin W., Scarpelli C.,
Wincker P., Lander E.S., Weissenbach J., Robinson-Rechavi M.,
Genome duplication in the teleost fish Tetraodon nigroviridis reveals
The early vertebrate proto-karyotype.",
Nature 431:946-957 (2004).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00307; CH; 2.

Pfam; PF00435; Spectrin; 13.

Pfam; PF00435; Spectrin; 13.

PRINTS; PR0063; SPECTRINPH.

SMART; SM00233; CH; 2.

SMART; SM00233; PH; 1.

SMART; SM00150; SPEC; 14.

PROSITE; PS00020; ACTININ 2; 1.

PROSITE; PS500021; CH; 2.

PROSITE; PS50003; PH DOMAIN; 1.
                                                                                                             QDDGM6_BRARE PRELIMINARY;
QSDGM6;
QSDGM6;
Q1-MAR-2001 (TrEMBLrel. 16,
01-MAR-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON TER
NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genoscope; Whitehead Institute Centre for Genome Kessatus
Submitted (FEB-2004) to the EMBL/GenBank/DDBJ databases.
-- CAUTION: The sequence shown here is derived from an
EMBL/GenBank/DDBJ whole genome shotgun (WGS) entry w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tetraodon nigroviridis (Green puffer).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Buteleostei; Neoteleostei;
Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;
Tetradontoidea; Tetraodontidae; Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin_act_bd.
InterPro; IPR00149; PH.
InterPro; IPR002017; Spectrin.
InterPro; IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=99883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORFNames=GSTENG00012286001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE.
Genoscope; Whitchead Institute Centre for Genome Research;
   Brachydanio rerio (Zebrafish)
Bukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Fragment)
Eukaryota; Metazoa;
                                                                                       Beta-spectrin.
                                                                                                                                                                                                                                                                    22
BRARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 preliminary data.
SIMILARITY: Contains 1 PH domain.
L; CAAE01013839; CAF95574.1; -; Ge
                                                                                                                                                                                                                                                                                                                                                                                          140
                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                       PKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 185
                                                                                                                                                                                                                                                                                                                                                                                                                         PKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2307
2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.9%; Score 46; DB
100.0%; Pred. No. 1.:
Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          262847 MW;
                                                                                                                   16,
25,
                                                                                                                   Last sequence update)
Last annotation update)
                                                                                                                                                                            Created)
   (Danio rer
Craniata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4E50FF1DCC68A638 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genomic_DNA
                              rerio)
                                                                                                                                                                                                                                         2357
   Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.3e-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from an
entry which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
   Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
RESULT
SPTB1_M
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PRO0683; SPECTRINPH.
SMART; SM00033; CH; 2.
SMART; SM00023; PH; 1.
SMART; SM0010; SPEC; 17.
PROSITE; PS00010; ACTININ_1; 1.
PROSITE; PS00020; ACTININ_2; 1.
PROSITE; PS50021; CH; 2.
PROSITE; PS50021; CH; 2.
PROSITE; PS50021; CH; 2.
PROSITE; PS50021; CH; 2.
SEQUENCE 2357 AA; 272828 MW; 1
                                                                                                                                                                                                                                                                                                                          SPTB1 MOUSE
P15508;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRIBEULA; ZDB-GENE-000906-1; sptb.
ZPIN; ZDB-GENE-000906-1; sptb.
GO; GO:0003779; F:actin binding; IBA.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin_act_bd.
InterPro; IPR001849; PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -|- SIMILARITY: Contains 1 PH domain.
EMBL; AF262336; AAG03012.1; -; mRNA.
HSSP; Q01082; 1BKR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Liao E.C., Paw B.H., Peters L.L., Zapata A., Pratt S.J., Do C.P., Lieschke G., Zon L.I.; "Hereditary spherocytosis in zebrafish riesling illustrates evolution of erythroid beta-spectrin structure, and function in red cell morphogenesis and membrane stability."; Development 127:5123-5122(2000).

-I- SIMILARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                     01-APR-1990 (Rel. 14, Created)
01-FBB-2005 (Rel. 46, Last sequence update)
01-MAY-2005 (Rel. 47, Last annotation update)
10-MAY-2005 (Rel. 47, Last annotation update)
Spectrin beta chain, erythrocyte (Beta-I spectrin)
Name-Sptb; Synonyms=Spnb-1, Spnb1, Sptb1;
Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MBDLINE=20515613; PubMed=11060238;
Liao E.C., Paw B.H., Peters L.L.,
                                                                         Bloom M.L., Birkenmeier C.S., Barker J.E.; "Complete nuclectide sequence of the murine erythroid beta-spectrin cDNA and tissue-specific expression in normal and jaundiced mice."; Blood 82:2906-2914(1993).
                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurogna
Muroidea; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
MEDLINE=88001019; PubMed=3307952;
Cioe L., Laurila P., Meo P., Kreb
"Cloning and nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                        MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002017; InterPro; IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001715;
InterPro; IPR001849;
InterPro; IPR011993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ensembl; ENSDARG00000030490; Danio rerio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE
                                             NUCLEOTIDE SEQUENCE OF 1054-1289.
                                                                                                                                  NUCLEOTIDE SEQUENCE.
MEDLINE=94033578; PubMed=8219239;
                                                                                                                                                                             NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; PF00307; CH; 2.
n; PF00169; PH; 1.
n; PF00435; Spectrin; 1
VTS; PR00683; SPECTRIN;
                                                                                                                                                                                                                                                                                                                                                                                                                    84
                                                                                                                                                                                                                                                                                                                                                                                                                                                68 DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   DLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20.9%; bu
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PH_type.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 46; DB 2;
Pred. No. 1.3e-3
0; Mismatches
                Krebs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cytoskeleton
                                                                                                                                                                                                                                                                                                                                              PRT;
    Ğ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         989415E3AD9AF71B CRC64;
                .
:
                                                                                                                                                                                                                                                                                                                                              2127
    œ
   , Goodman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.3e-37;
                                                                                                                                                                                                                                                                                                                                              Ş
    erythrocyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2357;
                .
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
 Curtis P.J.;
ocyte beta-spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                             Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
Query Match
Best Local S
   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; S66283; I
EMBL; M18641; I
HSSP; Q01082;
                                                                                                                                                                                                                                               Repeat.
INIT_MET
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA.";
Blood 7
                                                                         REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                  REPEAT
REPEAT
                                                                                                                                                                       REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                               REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                 Pfam; PF00307; CH; 2.
Pfam; PF00435; Spectrin; 17.
SMART; SM00033; CH; 2.
SMART; SM00150; SPEC; 17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This Swiss-Prot entry is copyright. It is produ
between the Swiss Institute of Bioinformatics
the European Bioinformatics Institute. There a
use as long as its content is in no way modifie
                                                                                                                                                                                                      REPEAT
                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                        SMR; P15508;
Ensembl; ENSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         +
                                                                                                                                                                                                                                                                                        Actin capping;
                                                                                                                                                                                                                                                                                                                         PROSITE;
                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001589; Actnin actin
InterPro; IPR001715; Calponin act
InterPro; IPR002017; Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ÷
                                                                                                                                                                                                                                                                                                                                                                                                               MGI; MGI:98387; Spnb1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the crythrocyte plasma membrane.

SUBUNIT: Composed of nonhomologous chains, alpha and beta, which aggregate to form dimers, tetramers, and higher polymers.

MISCELLANEOUS: This complex is anchored to the cytoplasmic face of the plasma membrane via another protein, ankyrin, which binds to beta-spectrin and mediates the binding of the whole complex to a transmembrane protein band 3. The interaction of erythrocyte spectrin with other proteins through specific binding domains lead spectrin with other proteins through specific binding domains lead
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY: Contains 2 CH (calponin-homol SIMILARITY: Contains 17 spectrin repeats.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: Spectrin is the major constituent of the cytoskeletal network underlying the erythrocyte plasma membrane. It associates with band 4.1 and actin to form the cytoskeletal superstructure o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: Belongs to the spectrin family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to the formation of an extensive subplasmalemmal meshwork which is thought to be responsible for the maintenance of the biconcave shape of human erythrocytes, for the regulation of plasma membrane components and for the maintenance of the lipid asymmetry of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          70:915-920(1987).
 l Similarity
38; Conserv
                                                                                                                                                                                                                                                                                                                         PS00019;
                                                                                                                                                                                                                                                                                                    PS50021;
                                                                                                                                                                                                                                                                                                              PS00020;
                                                                                                                                                                                                                                                                                                                                                                                                                      ENSMUSG00000021061; Mus musculus.
                                                                        1023
1130
1236
1236
1341
1347
1546
1652
1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     membrane
                                                                                                                                                                                 53
172
172
275
275
384
490
599
 Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                              1BKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB28600.1;
AAA40126.1;
                                                                                                                                                                                                                                                                                        Actin-binding; Cytoskeleton; Erythrocyte; Membrane;
                                           Ä
                                                                                                                                                                                                                                                                                                  ; ACTININ_1;
; ACTININ_2;
; CH; 2.
                                                                                  915
1022
1129
1235
1340
1446
1545
1758
                                                                                                                                                                                                             489
                                                                                                                                                                                809
                      17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CH (calponin-homology)
  0
                                                                                                                                                                                                                                    By similarity.
Actin-binding.
CH 1.
CH 2.
                                                                        Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
           Score 38;
Pred. No.
                                                    Spectrin
Spectrin
                                                                                                                                                                                          Spectrin
Spectrin
                                                                                                                                                                                                               Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA.
                                                                                                                                                  Spectrin
                                                                                                                                                                                 Spectrin
                                                                                                                                      Spectrin
                                                                                                                                                            Spectrin
                                                                                                                                                                     Spectrin
                                                                                                                                                                                                                                                                   similarity.
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                      Z'B
                                           2026FBED6F775ED1
                                                                                    10
11
12
13
                                                                                                                                                            7654422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              is produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 modified
                      DB 1;
          2.2e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          are no
                      Length 2127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and the
  Indels
                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              b
  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              collaboration
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0f
 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7
```

```
RESULT 24
SPTB1_HUM
  용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPTB1 HUMAN STANDARD; PRT; 2136 AA.
p11277; Q15510; Q15519;
01-JUL-1989 (Rel. 11, Created)
01-FEB-2005 (Rel. 46, Last sequence update)
10-MAY-2005 (Rel. 47, Last annotation update)
Spectrin beta chain, erythrocyte (Beta-I spectrin)
                                                                                                                                                                                                                                                                                                                                                                                    skipping in hereditary elliptocytosis associa beta-spectrin chain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE [MENA] (ISOFORMS 1
MEDLINE=90307707; PubMed=2195026;
wincolmann J.C., Chang J.G., Tse W.T.,
MEDLINE=22608298; PubMed=12665801; DOI=10.1038/nbt810; Gevaert K., Goethals M., Martens L., Van Damme J., Sta Thomas G.R., Vandekerckhove J.; Thomas G.R., Vandekerckhove J.;
                                                                                                                            Prchal J.T.,
Conboy J.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Winkelmann J.C., Costa F.F., Linzie B.L., "Beta spectrin in human skeletal muscle. processing of 3' beta spectrin pre-mRNA gisoform with a unique carboxyl terminus."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=90307707;
Winkelmann J.C., C
Forget B.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Name=SPTB; Synonyms=SPTB1;
Homo sapiens (Human).
                                                                                                                                                      NUCLEOTIDE SEQUENCE [MRNA]
MEDLINE=88041127; PubMed=3
                                                                                                                                                                                             Winkelmann J.C., Leto T.
Linnenbach A.J., Sahr K.
"Molecular cloning of the
Blood 72:328-334(1988).
                                                                                                                                                                                                                                              NUCLEOTIDE SEQUENCE [MRNA] OF 1333-1431 AND 1908-2136 MEDLINE-88269838; PubMed-3390609;
                                                                                                                                                                                                                                                                                                  MEDIINE-91007291; PubMed-1976574; DOI-10.1016/0378-1119(90)90104-Y; Yoon S.H., Kentros C.G., Prchald J.T.; "Identification of an unusual deletion within homologous repeats of human reticulocyte beta-spectrin and probable peptide polymorphism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=91332035; PubMed=1840591;
Gallagher P.G., Tse W.T., Costa F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa;
                                                                 PROTEIN SEQUENCE
                                                                                                                   "Isolation and
                                                                                                                                                                                                                                                                                        Gene
                                                                                                                                                                                                                                                                                                                                                         NUCLEOTIDE SEQUENCE [MRNA]
                                                                                                                                                                                                                                                                                                                                                                                                                                       Forget
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE [MRNA] OF 2001-2136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WEDLINE=91056094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE=Skeletal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE [MRNA]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OWOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biol.
                                                                                                                                                                                                                                                                                                                                                                                   Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-length sequence of the cDNA for iol. Chem. 265:11827-11832(1990).
                                                                                                                                                                                                                                                                                        91:297-302(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                       B.G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chem.
                                                                                                                                                                                                                                                                                                                                                                                   Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL
                                                                                          Acad.
                                                                                                                               Morley B.J.,
Kan Y.W.;
                                                                                                                   characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265:20449-20454 (1990).
                                                                                                                                                                                                                                                                                                                                                                                   266:15154-15159(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    muscle;
                                                                                                                                                                                                          Leto T.L., Watkins P.C.,
Sahr K.E., Kathuria N.,
ng of the cDNA for human
                                                                                          Sci.
                                                                                                                                         CE [MRNA] OF 1208-1481
PubMed=3478706;
ey B.J., Yoon S.-H., C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=2243099;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euarchontoglires;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata; Craniata; Vertebrata;
                                                                                         U.S.
                                                                                          Þ
                                                                                                                                                                                                                                                                                                                                                         OF 927-1754.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF 1054-2136
                                                                                          84:7468-7472(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
;
                                                                                                                   of cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scarpa
                                                                                                                                             Coetzer
                                                                                                                                                                                                                                                                                                                                                                                                             associated w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human erythroid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scarpa A.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  generates
.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ISOFORM
                                                                                                                                                                                                          ,.Eddy R., Shows T.B.,
Marchesi V.T., Forget B.G.;
erythrocyte beta-spectrin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tissue-specific generates a beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Forget B.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                         T.L.,
                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boivin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2)
                                                                                                                                                                                                                                                                                                                                                                                                             with
                                                                                                                                                                                                                                                                                                                                                                                                            causing exon
with a truncated
                           Staes
                                                                                                                 human erythrocyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Marchesi V.
                                                                                                                                           Palek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽.,
 by mass
                                                                                                                                                                                                                                                                                                   polymorphism.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       beta-spectrin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           differential
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Delaunay
```

```
Sahr K.E., Coetzer T.L., Moy L.S., Derick L.H., Chishti A.H., Jarolim P., Lorenzo F., del Giudice E.M., Iolascon A., Galland Cao A., Delaunay J., Liu S.-C., Palek J., "Spectrin Cagliari: an Ala-->Gly substitution in helix 1 of buspectrin repeat 17 that severely disrupts the structure and suassociation of the erythrocyte spectrin heterodimer."; J. Biol. Chem. 268:22656-22662 (1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=97001215; PubMed=8844207;
DOI=10.1002/(SICI)1098-1004(1996)8:2<97::AID-HUMUI>3.3.CO;2-W;
Maillet P., Alloisio N., Morle L., Delaunay J.;
"Spectrin mutations in hereditary elliptocytosis and hereditary spherocytosis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         spectrometric identification of sorted N-terminal peptides.";
Nat. Biotechnol. 21:566-569(2003).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=93352802; PubMed=8102379;
Becker P.S., Tse W.T., Lux S.B., Forget
"Beta spectrin Kissimmee: a spectrin var
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=84295638; PubMed=6472478; Speicher D.W., Marchesi V.T.;
                                                                                                                                                                                                                                                                        MEDLINE=90369011; PubMed=1975598;
Tse W.T., Lecomte M.-C., Costa F.F.,
Dhermy D., Forget B.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                   Parquet N., Devaux I., Boulanger L., Galand C., Boivin P., Lecomte M.-C., Dhermy D., Garbarz M.; "Identification of three novel spectrin alpha I/74 mutations in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Recurrent fatal hydrops fetalis associated with a nucleotide substitution in the erythrocyte beta-spectrin gene.";
J. Clin. Invest. 95:1174-1182(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gallagher P.G., Weed S.A., Tse W.T., Marchesi S.L., Mohandas N., Forget B.
                                                                                                                                                                                                                       "Point mutation in the beta-spectrin ger hereditary elliptocytosis. Implications dimer self-association.";
                                                                                                                                                                                                                                                                                                                                                                                hereditary elliptocytosis: further folding unit model of the spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANTS HE VAL-2022 AND ARG-2023.
MEDLINE=94289716; PubMed=8018926;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dominant hereditary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT HE CAGLIARI GLY-2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVIEW ON VARIANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nature 311:177-180(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      segments.*
                                                                                      ÷
                                                                                                                                                                                                                                                                                                                              VARIANT HE PRO-2052
                                                                                                                                                                                                                                                                                                                                                                  Blood 84:303-308(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=95190014; PubMed=7883966;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT HE PROVIDENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT HS KISSIMMEE ARG-201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=94043025; PubMed=8226774;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      peicher D.W., Marchesi V
Erythrocyte spectrin is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Clin. Invest. 92:612-616(1993).
                                                                                                                                                                                                           Clin. Invest. 86:909-916(1990)
                                                                                                                                                   FUNCTION: Spectrin is the major constituent of the cytoskeletal network underlying the erythrocyte plasma membrane. It associat with band 4.1 and actin to form the cytoskeletal superstructure
                                                                                the erythrocyte plasma membrane.
SUBUNIT: Composed of nonhomologous chains, alpha and beta, aggregate to form dimers, tetramers, and higher polymers.
ALTERNATIVE PRODUCTS:
                                                                    Event=Alternative
                                   IsoId=P11277-1;
.me=2; Synonyms=Muscle-speci
IsoId=P11277-2; Sequence=V8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8:97-107 (1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T., Lux S.B., Forget B.G.;
immee: a spectrin variant associated with autosomal
spherocytosis and defective binding to protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRO-2018
Sequence=VSP_000719;
                                  Sequence=Displayed;
                                                                    splicing; Named isoforms=3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        comprised of many homologous triple helical
                                                                                                                                                                                                                                                                                                                                                                                    support for a triple-stranded
heterodimer contact site.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Benoit L., Morrow J.S., .G.;
                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                               Garbarz
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Galand C.,
                                                                                                                                                                                                                                             for the
                                                                                                                                                                                                                                           associated with alpha
or the mechanism of spe
                                                                                                                                                                                                                                                                                            .
                                                                                                                                                                                                                                                                                                 Feo
                                                                                                                                                                                                                                                                                            ი
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gallanello
                                                                                                                                                                                                                                                                                               Boivin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        beta
self-
                                                                                                                                                                                                                                           spectrin
                                                                                                                                                                                                                                                               1/74
```

```
á
밁
                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; J05500; AAA60578.1; -; mRNA.
EMBL; J05500; AAA60579.1; -; mRNA.
EMBL; M37884; AAA63259.1; -; mRNA.
EMBL; M37885; AAA63259.1; -; mRNA.
EMBL; M37885; AAA60571.1; -; mRNA.
EMBL; M57948; -; NOT ANNOTATED CDS; m
EMBL; X59510; CAA42097.1; -; mRNA.
EMBL; X59511; CAA42098.1; -; mRNA.
EMBL; X59514; CAA42098.1; -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This Swiss-Prot entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use as long as its content is in no way modified and this statement is not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                   Pfam; PF00307; CH; 2.
Pfam; PF00435; Spectrin; 17.
SMART; SM00033; CH; 2.
SMART; SM00150; SPEC; 17.
                                                                                                                                                                                                                                           GO; GO:0008091; C:spectrin; TAS. GO; GO:0003779; F:actin binding; TAS. GO:0003779; F:actin binding; TAS. InterPro; IPR001589; Actnin actin bd. InterPro; IPR001715; Calponin act bd. InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                       MIM; 130600;
                                                                                                                                                                                                                                                                                                                                                                               HGNC; HGNC:11274;
MIM; 182870; -.
                                                                                                                                                                                                                                                                                                                                                                                                                    Ensembl;
                                                                                                                                                                                                                                                                                                                                                                                                                                        SWISS-2DPAGE; P11277; HUMAN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; A37064; SJHUE
PDB; 1835; X-ray;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      removed
                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISEASE: Defects in SPTB are the cause of spherocytosis type I (SPH1) [MIM:182870]. SPH1 is a disorder characterized by severe hemolytic anemia. Inheritance is autosomal dominant. MISCELLANSOUS: This complex is anchored to the cytoplasmic face of the plasma membrane via another protein, ankyrin, which binds to beta-spectrin and mediates the binding of the whole complex to a transmembrane protein band 3. The interaction of erythrocyte spectrin with other proteins through specific binding domains lead to the formation of an extensive subplasmalemmal meshwork which is thought to be responsible for the maintenance of the biconcave shape of human erythrocytes, for the regulation of plasma membrane components and for the maintenance of the Disconcave
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IsoId=P11277-3; Sequence=VSP_007242;
DISEASE: Defects in SPTB are a cause of rhesus-unlinked hereditary elliptocytosis (HE) (MIM:182870, 130600, 166900]; also called elliptocytosis (EL2). Hereditary elliptocytosis (also known as hereditary ovalocytosis) is a genetically heterogeneous, autosomal dominant hematologic disorder. It is characterized by variable hemolytic anemia and elliptical or oval red cell shape. Several abnormalities in the membrane skeleton have been identified, including a number that have been localized to spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plasma membrane.
SIMILARITY: Belongs to the spectrin family.
SIMILARITY: Contains 2 CH (calponin-homology)
SIMILARITY: Contains 17 spectrin repeats.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Elliptocytosis due to defects in SPTB can also elliptocytosis 3 (EL3).
DISEASE: Defects in SPTB are the cause of spherometers.
 107
                                   95
                                                                          38;
                                                                                            Similarity
                                                                                                                                               PS00019; ACTININ_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                    ENSG00000070182;
                       MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SJHUB
                                                                                                                                                                                                                                                                                                                                                                                                                                                         A=1063-1274.
                                                                                                                                                                                                                                                                                                                                                                                                    SPTB.
                                                                                            100.0%;
                                                                                                               17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                          0
                                                                                            Score 38;
Pred. No.
                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mRNA.
                                                                                            DB 1; Lo
2.2e-29;
                                                                                                               Length 2136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              spectrin.
be referr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                referred to
                                                                            0
                                                                            Gaps
                                                                            0
```

RESULT 25 Q6XDA0_RAT

```
DR REAL PROPERTY OF THE PROPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 26
Q59FP5_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00307; CH; 2.
Pfam; PF00435; Spectrin; 17.
SMART; SM00035; CH; 2.
SMART; SM00150; SPEC; 17.
PROSITE; PS00019; ACTININ 1; 1.
PROSITE; PS00020; ACTININ 2; 1.
PROSITE; PS50021; CH; 2.
SEQUENCE 2137 AA; 246327 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-UUL-2004 (TrEMBLrel. 27
05-UUL-2004 (TrEMBLrel. 27
05-UUL-2004 (TrEMBLrel. 27
05-UUL-2004 (TrEMBLrel. 27
Erythroid spectrin beta.
            -!- SIMILLARITY: Contains 1 PH domain.
-!- SIMILLARITY: Contains 1 PH domain.

EMBL; AB209415; BAD92652.1; -; mRNA.
SMR; Q59FP5; 1068-1277.
GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actini actin bd.
InterPro; IPR001715; Calponin_act_bd.
InterPro; IPR001715; PH.
InterPro; IPR001849; PH.
InterPro; IPR001805; Spectrin_PH.
Pfam; PF00307; CH; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE:
Chen Y. Huang C.-H.;
Submitted (FEB-2003) to the
EMBL; AY238343; AAQ02379.1;
HSSP; Q01082; 1AA2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-MAY-2005 (TrEMBLrel. 30, Created)
10-MAY-2005 (TrEMBLrel. 30, Last sequence update)
10-MAY-2005 (TrEMBLrel. 30, Last annotation update)
Spectrin, beta, erythrocytic (Includes spherocytosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q59FP5_HUMAN
Q59FP5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
Muridae; Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q6XDA0_RAT
                                                                                                                                                                                                                                                                               Totoki Y., Toyoda A. Ohara O., Nagase T., "None Title.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GO; GO:0005856; C:cytoskeleton; IEA.
GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actbind actnin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMR; Q6XDA0; 1064-1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q6XDA0;
                                                                                                                                                                                                                                                         Submitted (MAR-2005) to the
                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                    rissuE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                                                                                                                                                                         Toyoda A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17.3%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chordata; Craniata; Vertebrata; Euteleostomi; Euarchontoglires; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                     , Takeda T., Sakaki
Kikuno F.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246327 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27,
27,
27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 38; DB; Pred. No. 2.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0EC476DF6970D878 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2; bc. 3. 2.2e-29; 0;
                                                                                                                                                                                                                                                                                                                            ٧.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                 Tanaka
                                                                                                                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clinical
                                                                                                                                                                                                                                                                                                                              Yokoyama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
```

```
RESULT 27
Q8WYB3 HUMAN
ID Q8WYB3;
AC Q8WYB3;
DT 01-MAR-2
DT 01-MAR-2
DT 01-MAR-2
DT 01-MAR-2
OT 01-MAR-2
OT 01-MAR-2
REAL TAX
REA
                                                                                                                                                                                                                                                                                                                         RESULT 28
09WUX0 RAT
ID 09WUX0;
AC 09WUX0;
DT 01-NOV-1999 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RRAR RRAR ROCCOCC GREDT DT ACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON TER
SEQUENCE
                                                                                                                                                                                                                                          01-NOV-1999 (TrEMBLrel. 12,
01-NOV-1999 (TrEMBLrel. 12,
01-DEC-2001 (TrEMBLrel. 19,
Beta II spectrin (Fragment).
Name=Spnb1; Synonyms=sptbn1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMART; SM00150; SPEC; 17.
PROSITE; PS00019; ACTININ 1;
PROSITE; PS00020; ACTININ 2;
PROSITE; PS50021; CH; 2.
PROSITE; PS50003; PH_DOMAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00683; SPECT
SMART; SM00033; CH; 2.
SMART; SM00233; PH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Beta II spectrin-short
Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-2002 (TrEMBLrel. 20, Creat
01-MAR-2002 (TrEMBLrel. 20, Last
01-MAR-2002 (TrEMBLrel. 20, Last
Beta II spectrin-short isoform (F
MEDLINE=20267884; PubMed=10806113; Hayes N.V.L., Scott C., Heerkens E., CPinder J.C., Kordeli E., Baines A.J.; "Identification of a novel C-terminal
                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Mammalia; Eutheria; Euarchontoglires; Gl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cai T., Yu P.;
Submitted (DEC-1999) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE SEQUENCE.
Cai T., Yu P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QBWYB3_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00435;
                                                                                 TISSUE=Heart
                                                                                                                                      Muridae; Murinae;
NCBI_TaxID=10116;
                                                                                                                                                                                                                           Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Actin
                                                                                                  NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         capping; Actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 100.0%; 38; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2332 AA;
                                                                                                    SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 AA; 7551 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spectrin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPECTRINPH.
                                                                                                                                                                  Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euarchontoglires;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata; Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 38; DB; Pred. No. 2.4
0; Mismatches
                                                                                                                                                                                                                                                                                         Last
                                                                                                                                                                                                                                                                                                          Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 37;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F832D21E1EDCE5DD CRC64;
                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                     sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F133F5E5BBBEB8AB CRC64;
                                        Ohanian V.,
    variant of betaII spectrin:
                                                                                                                                                                                 Glires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2; Le
8.2e-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                        Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.4e-29
                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ა
;
                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Catarrhini;
                                        Maggs A.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
    two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
RESULT
OF DODO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RA Strausberg R.D., Collins F.S., Wagner L., Schamen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Vilalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Schnerch A., Schein J.E., Jones S.J., M., Smailus D.E.,
RA Rodriguez CNA, Sequences ",
RT "Generation and initial analysis of more than 15,000 full-length human
RT and mouse CDNA sequences ",
RI Proc. Natl Acad Sci II S. a Gollago. 1200-1200-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 37
                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                SMART; SM00233; PH; 1.
SMART; SM00150; SPEC; 2.
PROSITE; P850003; PH_DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q5D002_RAT
Q5D002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            activities.";
J. Cell Sci. 113:2023-2034(2000)
EMBL; AJ242018; CAB42816.1; -; m
                                                                                                  Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 2.
PFINTS; PR00683; SPECTRINPH.
                                                                                                                                                                                                                                                                                                                                                      Submitted (FEB-2005) to the
                                                                                                                                                                                                                                                                                                                                                                               NIH MGC Project;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899
Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurogna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-MAY-2005 (TrEMBLrel. 3)
10-MAY-2005 (TrEMBLrel. 3)
10-MAY-2005 (TrEMBLrel. 3)
Spnb2 protein (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                isoforms
                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                              CISSUE=Ovary
                                                                                                                                                                                         nterPro;
                                                                                                                                                                                                                  nterPro;
                                                                                                                                                                                                                                           nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29
RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TER
                                                                                                                                                                                                                                                                                                                       SIMILARITY: Contains
                                                                                                                                                                                                                                                                    G5D002; 352-457.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621726; Spnb1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASD 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of betaII spectrin have distinct intracellular locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QVSQNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASD
                                                                                                                                                                                      IPR001605;
                                                                                                                                                                             IPR001849; PH.
IPR002017; Spectrin.
IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TrEMBLrel. 30, (TrEMBLrel. 30, (TrEMBLrel. 30,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82 AA; 9526 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16.8%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                          РH
                                                                                                                                                                                                                                                                                                 -; mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                      EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 37;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6FDA86568647C6E9
                                                                                                                                                                                                                                                                                                                               domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2; Lo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT DE REAR DE DE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Addition O., Aury J.M., Brunet F., Petit J.L., Stange-Thomann N., Alay J.M., Brunet F., Petit J.L., Stange-Thomann N., And Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A., Ra Micaud S., Jaffe D., Fisher S., Lutfalla G., Dossat C., Segurens B., Ra Dasilva C., Salanoubat M., Levy M., Boudet N., Castellano S., Anthouard V., Jubin C., Castelli V., Katinka M., Vacherie B., Anthouard V., Jubin C., Castelli V., Katinka M., Vacherie B., Blemont C., Skalli Z., Cattolico L., Poulain J., De Berardinis V., Ra Lemdet C., Duprat S., Brottier P., Coutanceau J.P., Gouzy J., Ralindbad-Toh K., Birren B., Nachanneau J.P., Gouzy J., Katins M., Volff JN., Guigo R., Zody M.C., Mesirov J., Katindbad-Toh K., Birren B., Nusbaum C., Kahn D., Robinson-Rechavi M., Laudet V., Schachter V., Quetier F., Saurin W., Scarpelli C., "Genome duplication in the teleost fish Tetraodon nigroviridis reveals the early vertebrate proto-karyotype.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 32
                                                                                                                                                                                                                                                                                      -!- SUBUNIT: Forms a stable but non-cov mature oocytes (By similarity).
-!- SIMILARITY: Contains 1 PH domain.
BMBL; CAAB01014601; CAG00602:1; -; Genc InterPro; IPR001589; Actnin actin bd. InterPro; IPR001715; Calponin_act_bd. InterPro; IPR001849; PH.
                        Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 1
PFANTS; PR00683; SPECTRINE
SWART; SW00033; CH; 2.
SWART; SW00033; PH; 1.
SWART; SW00150; SPEC; 17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nature
[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORFNames=GSTENG00019086001;
Tetraodon nigroviridis (Green puffer).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostei, Neoteleostei,
Actinopterygii, Neopterygii, Teleostei, Euteleostei, Neoteleostei,
Acanthomorpha, Acanthopterygii, Percomorpha, Tetraodontiformes,
Tetradontoidea, Tetraodontidae, Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genoscope; Whitehead Institute Centre for Genome Research; Submitted (FEB-2004) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-SEP-2005 (TrEMBLrel. 31, Created)
13-SEP-2005 (TrEMBLrel. 31, Last sequence update)
13-SEP-2005 (TrEMBLrel. 31, Last annotation update)
13-SEP-2005 (TrEMBLrel. 31, Last annotation update)
Chromosome 7 SCAF14601, whole genome shotgun sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q4SFIO_TETNG
Q4SFIO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=99883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                        nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           preliminary data.
FUNCTION: Plays a key role in the control of the eukaryotic cycle. It is required in higher cells for entry into S-phase mitosis. Component of the kinase complex that phosphorylates repetitive C-terminus of RNA polymerase II. Catalytic component pf (By similarity).

SUBUNIT: Forms a stable but non-covalent complex with cyclir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mitted (FEB-2004) to the EMBL/GenBank/DDBJ databases. CAUTION: The sequence shown here is derived from an EMBL/GenBank/DDBJ whole genome shotgun (WGS) entry w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KVSEEAESQQWDTSKGDQVSQNGLPAEQGSPR 192
                                                                                                                                                                                                                                  IPR002017;
IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KVSEEAESQQWDTSKGDQVSQNGLPAEQGSPR 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
;
                                                                                                                       SPECTRINPH
   ACTININ_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              58595 MW;
                                                                                                                                                                                                                                  Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 32;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2969B75C89F71A3A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                        Genomic_DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Lo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                r entry into S-phase that phosphorylates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cyclin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ğ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 31
Q5XG36_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SO PT
                                                                                                                                                                                                                  Ribusherg R.D., Felingold E.A., Grouse L.H., Derge J.G.,

Ak Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,

Ak Altachul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

Ak Altachul S.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Ak Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Ak Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Ak Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Ak Hopkins R.F., Jordan H., Moore T., Rabin G.M., Hong L.,

Ak Hopkins R.F., Jordan R., Farmer A.A., Rubin G.M., Hong L.,

Ak Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Ak Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Ak Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,

Ak Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,

Bebak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,

Ak Willialon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

Ak Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

Ak Villalon D.K., Mozny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

Ak Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,

Ak Rodriguez A.C., Grinwood J., Schmutz J., Myers R.M.,

Ak Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,

Ak Rodriguez A.C., Grinwood J., Schmutz J., Myers R.M.,

Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,

"Generation and initial analysis of more than 15,000 full-length human

"Generation and initial analysis of more than 15,000 full-length human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE;
PROSITE;
PROSITE;
NON_TER
                                                                 Klein S., Gerhard D.S.;
Submitted (CCT-2004) to the EMBL/
EMBL, BC084634; A.H84634.1; -; mR
GO; GO:0003779; F:actin binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Name=LOC398511;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-OCT-2004 (TrEMBLrel. 28, 25-OCT-2004 (TrEMBLrel. 28,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q5XG36_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                          Proc. Natl. Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-Embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Richardson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Ve
Amphibia; Batrachia; Anura; Mesobatrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xenopus laevis (African clawed
             InterPro; IPR001589; Actbind acthin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  initiative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=22341132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE=Embryo
                                                                                                                                                          NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOC398511 protein (Fragment).
                                                                                                                                      FISSUE=Embryo;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genetic and genomic tools
                                                                                                                                                                                                             mouse cDNA sequences."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LEGRFKQLQDEREAVQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PS00020;
PS50021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEGRFKQLQDEREAVQKKTFTKWVNSHL 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS50003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2413 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strausberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xenopus; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ACTININ_2; 1.
; CH; 2.
; PH_DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PubMed=12454917; DOI=10.1002/dvdy.10174; sberg R.L., Wagner L., Pontius J., Clifto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12.7%;
                                                                                                      to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277305 MW;
                                                                                                                                                                                          U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for Xenopus research: The NIH Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 28;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d frog).
Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                          99:16899-16903 (2002)
                                                                                   mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                    IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8EA3A927A2C17FBB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2; Le 5.2e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pipoidea;
                                                                                                        databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Clifton S.W.,
                                                                                                                                                                                                                             full-length human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
Q7ZX11
ID Q7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SABBBBBB
   RESULT 32
                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;

R Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

R Klausher R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,

R Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

R Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

R Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Stapleton M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,

B Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,

R Stapleton N.J., Brown P.J., More T., Abramson R.D., Mullahy S.J.,

R Brownstein M.J., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hullahy S.J.,

R Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hullyk S.W.,

R Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hullyk S.W.,

R Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hullyk S.W.,

R Richards S., Worley K.C., Hale S., Garcia A.M., Cay L.J., Hullyk S.W.,

R Richards S., Worley R.C., Hale S., Garcia A.M., Cay L.J., Hullyk S.W.,

R Willialon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

R Pahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,

Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,

Barbone V. W. Green F. D. Nicken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                        Whiting M., Madan A., Young A.C., Shevchenko Y., Bourrar Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C., Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M., Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-2003 (TrEMBLrel. 24,
01-OCT-2003 (TrEMBLrel. 24,
01-OCT-2003 (TrEMBLrel. 25,
LOC398511 protein 'm-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART; SM00150; SPEC; 4.
PROSITE; PS00019; ACTININ_1;
PROSITE; PS00020; ACTININ_2;
PROSITE; PS50021; CH; 2.
Klein S., Strausberg R.;
Submitted (JAN-2003) to the EMBL/GenBank/DDBJ databases.
EMBL; BC046267; AAH46267.1; -; mRNA.
HSSP; Q01082; 1BKR.
GO; GO:0003779; F:actin binding; IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOC398511 protein (Fragment)
Name=LOC398511;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=Embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; F
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q7ZX11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q7ZX11_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQÜENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00033;
SMART; SM00150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00435; Spectrin;
                                                                                      TISSUE=Embryo;
                                                                                                          NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                              Richardson P.;
                                                                                                                                                                                                                           MEDLINE=22341132;
                                                                                                                                                                                                                                                TISSUE=Embryo
                                                                                                                                                                                                                                                              NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                    "Generation and initial analysis of more than 15,000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON TER
                                                                                                                                                           initiative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XENLA
                                                                                                                                                                                                                                                                                                                  mouse cDNA sequences."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794 AA;
                                                                                                                                                                                                           Strausberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                          genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Xenopus;
                                                                                                                                                                                                       PubMed=12454917; DOI=10.1002/dvdy.10174;
sberg R.L., Wagner L., Pontius J., Clifton S.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92657 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12.3%;
                                                                                                                                                                            tools
                                                                                                                                                                                                                                                                                                   U.S.A.
                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 27;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    بر بر
                                                                                                                                                                                                                                                                                                   99:16899-16903 (2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96F2259167965456 CRC64;
                                                                                                                                                                          Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                            research:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.9e-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 794;
                                                                                                                                                                                                                                                                                                                                                                       Smailus
                                                                                                                                                                          The NIH Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pipidae;
                                                                                                                                                                                                                                                                                                                                    full-length
                                                                                                                                                                                                                                                                                                                                                                       D.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hy S.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T.E.,
                                                                                                                                                                                                                                                                                                                                      human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

IPR001589; Actbind_actnin.
IPR001715; Calponin-like.
IPR002017; Spectrin.

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001715; Calponin-

InterPro; IPR00207; Spectrin.

Pfam; PF00307; CH; 2.

Pfam; PF00307; CH; 2.

SMART; SM00033; CH; 2.

SMART; SM00033; CH; 2.

SMART; SM00159; SPEC; 7.

PROSITE; PS000019; ACTININ_2; 1

PROSITE; PS00020; ACTININ_2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUCLEOTIDE SEQUENCE:
STRAIN-Sprague-Dawley; TISSUE-Brain;
STRAIN-Sprague-Dawley; TISSUE-Brain;
MEDLINE-98369639; PubMed-9704016; DOI=10.1006/bbrc.1998.9067;
MEDLINE-98369639; PubMed-9704016; DOI=10.1006/bbrc.1998.9067;
MEDLINE-98369639; PubMed-9704016; DOI=10.1006/bbrc.1998.9067;
MEDLINE-10.1006/bbrc.1998.9067;
MEDLINE-10.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.1006/bbrc.
                                                                                                                                                                                                                                                                                       Rothstein J.D., Jackson M.; "GTRAP41- a cytoskeletal modulator of EAAT4 glutamate transporter."; Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: Probably plays an important role in neuronal membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=98340016; PubMed=9675416; DÓI=10.1016/S0169-328X(98)00068-0; Ohara C., Ohara R., Yamakawa H., Nakajima D., Nakayama M.; "Characterization of a new beta-spectrin gene which is predominantly expressed in brain.";

Brain Res. Mol. Brain Res. 57:181-192(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OSOWNĒ; OS8197; Q9ES68;
28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
10-MAY-2005 (Rel. 47, Last annotation update)
Spectrin beta chain, brain 2 (Spectrin, non-ery
(Beta-III spectrin) (SPNB-3) (Beta SpIII sigma
protein GTRAP41).
                                                 This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [2] NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=Sprague-Dawley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
Muroidea; Muridae; Murinae; Rattus.
                            between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *A novel brain-specific interaction with Munc13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus norvegicus (Rat).
                                                                                       are the predominant cell-type to express t
abundantly in Purkinje cells.
SIMILARITY: Belongs to the spectrin family
SIMILARITY: Contains 2 CH (calponin-homold
SIMILARITY: Contains 1 PH domain.
SIMILARITY: Contains 17 spectrin repeats.
                                                                                                                                                                                                                                                TISSUE SPECIFICITY:
     European
Swiss-Prot entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Res. Mol. Brain Res. 57:181-192(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122756 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Commun. 248:846-851(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : isoform
                                                                                                                                                                                                                      Abundantly transcribed in cell-type to express the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 27; DB; Pred. No. 2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                (calponin-homology)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABDS6DC56C4CA11B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         non-erythroid beta chain
I sigma 1) (Spectrin-like
                                                                                                                                                                             family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   spectrin: isolation and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B 2; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1060
                                                                                                                                                                                                                                                   ij
                                                                                                                                                                                                                         gene.
                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                   domains
                                                                                                                                                                                                                           brain.
Found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sasaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                   Neurons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŧ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
```

S

87

LPKPTKGRMRIHCLENVDKALQFLKEQ 113

```
Query Match
Best Local S
Matches 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PPÓ0307; CH; 2.
Pfam; PPO0169; PH; 1.
Pfam; PPO0145; Spectrin; 17.
Pfam; PPO0435; Spectrin; 17.
PRINTS; PR00433; CH; 2.
SMART; SM00233; CH; 2.
SMART; SM00233; CH; 1.
SMART; SM00215; SPEC; 17.
PROSITE; PS00001; ACTININ 1; 1
PROSITE; PS00001; ACTININ 2; 1
PROSITE; PS00001; CH; 2.
PROSITE; PS50003; PH DOMAIN; 1
PROSITE; PS50003; PH DOMAIN; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AB008551; BAA32699.1; -
EMBL; AB001347; BAA32473.1; -
EMBL; AF225960; AAG28596.1; -
PIR; JB0271; JE0271.
HSSP; Q01082; 1BKR.
SMR; Q9QWN8; 2212-2333.
                                                                                                                             DOMAIN
CONFLICT
CONFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ensembl; ENSENGG0000019564; Rattus norvegicus.
GO; GO:0005737; C:cytoplasm; TAS.
GO; GO:00016363; C:nuclear matrix; TAS.
GO; GO:0008091; C:spectrin; TAS.
GO; GO:0008091; C:spectrin; TAS.
GO; GO:0005200; F:structural constituent of cytoskeleton; TAS.
GO; GO:0017158; P:regulation of calcium ion-dependent exocytosis;
GO; GO:0016081; P:synaptic vesicle docking during exocytosis; TAS.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; CalponIn_act_bd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Actin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               as long
           ch 12.3%; 50
l Similarity 100.0%; 1
27; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR001849; PH. type.
IPR001993; PH_type.
IPR002017; Spectrin.
IPR001605; Spectrin_PH.
                                                                                                                                852
1055
1172
1172
1172
11278
11388
11388
11488
11588
11594
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
11694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  as its
                                                                                                                          161
278
415
529
639
745
850
956
11170
11276
11381
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
11486
1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Actin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  content
                                                                                                                                271064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                          Score 27; Prod. No. 5.5/
pred. No. 5.5/
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.

j; Cytoskeleton; Membrane; Repeat.

Actin-binding (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actin-binding CH 1. CH 2.
                                                                                                                                                                                                                                                                                                                                                                                                                  Spectrin
Spectrin
PH.
VTL -> GT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA.
mRNA.
mRNA.
                                                                                                                          L. -> GTF (in Ref. 3).
-> F (in Ref. 2).
-> G (in Ref. 3).
-> P (in Ref. 3).
-> I (in Ref. 3).
-> G (in Ref. 3).
-> G (in Ref. 2).
-> V (in Ref. 2 and 3).
-> W (in Ref. 3).
-> W (in Ref. 3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  no way modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .5e-18;
                                                                       Length 2388;
                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ω</u>
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and this
                 Indels
                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Btatement
                 <u>.</u>
                 Gapa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                 0
```

밁

103

LPKPTKGRMRIHCLENVDKALQFLKEQ 129

Q68FG2_MOUSE

PRELIMINARY;

2388

₿

```
Riausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
Altschul S.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
Altochako L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
Al Diatchenko L., Marusina K., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
Al Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
Al Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
Al Brownstein M.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Hosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Hosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Hosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Hosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
Al Holard S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
Al Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
Al Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
Al Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
Al Mitting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
Al Bakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
Al Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
Generation and initial analysis of more than 15,000 full-length human
and mouse C.M. Schein J.E., Jones S.J.M., Marra M.A.;
"Generation and initial analysis of more than 15,000 full-length human
 Query Match
                                                                  pfam; pp00307; CH; 2.

pfam; pp00159; PH; 1.

pfam; pp00455; Spectrin; 17.

pfam; pp00455; SpectrinpH.

SMART; SM00033; CH; 2.

SMART; SM00033; PH; 1.

SMART; SM00239; PH; 1.

SMART; SM00250; SPEC; 17.

PROSITE; pS000019; ACTININ 1; 1.

PROSITE; pS000020; ACTININ 2; 1.

PROSITE; PS00003; PH DOWALN; 1.

PROSITE; PS50003; PH DOWALN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eukaryota; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
Muroidea; Muridae; Murinae; Mus.
                                     Actin capping; SEQUENCE 238
                                                                                                                                                                                                                                                                                   InterPro; IPR001589; Actnin actin
InterPro; IPR001715; Calponin_act_
InterPro; IPR001849; PH.
InterPro; IPR0011993; PH_type.
InterPro; IPR002017; Spectrin_PH.
InterPro; IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                              MGI; MGI: 1313261; Spnb3.

GO; GO:0003779; F:actin binding; IEA.

GO; GO:0003779; F:actin binding; IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ensembl; ENSMUSG00000067889; Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMR; Q68FG2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=C57BL/6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899; Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=C57BL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Spectrin beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-OCT-2004 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: Contains 1 PH domain.; BC079860; AAH79860.1; -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGC Project;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (AUG-2004) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cDNA sequences."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                       2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel.
                                     Actin-binding; Cy
AA; 270923 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SC1.
                                                                                                                                                                                                                                                                               Spectrin.
Spectrin_PH.
 12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
 Score
                                                       Cytoskeleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           annotation
                                     19DA7460B75576D1 CRC64;
 27;
 BB
2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases.
Length 2388;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPTN2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPIN2 HUMAN STANDARD; PKT; 2370 Am. O15020; O14873; O14873; C14873; 28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2005 (Rel. 47, Last annotation update)
50-MAY-2005 (Rel. 47, Last annotation update)
Spectrin beta chain, brain 2 (Spectrin, non-erythroid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=99045654; PubMed=9826670; DOI=10.1073/pnas.95.24.14158; Stankewich M.C., Tse W.T., Peters L.L., Ch'ng Y., John K.M., Stankewich R.R., Devarajan P., Morrow J.S., Lux S.E., Peters L.L., Ch'ng Y., John K.M., Stabach P.R., Devarajan P., Morrow J.S., Lux S.E., Law S.E., La
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=97349984; PubMed=9205841;
Nagase T., Ishikawa K.-I., Nakajima D., Ohira M., Seki N.,
Miyajima N., Tanaka A., Kotani H., Nomura N., Ohara O.;
"Prediction of the coding sequences of unidentified human genes. VII.
The complete sequences of 100 new cDNA clones from brain which can
                                                                                                                                                                                                                                                   ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tse W.T., Peters L.L., John K.M., Lux S.E.;
"SPTBN2, a new, widely expressed beta III spectrin gene
human chromosome 11q13 and mouse chromosome 19.";
submitted (SEP-1997) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 code for large proteins in vitro.";
DNA Res. 4:141-150(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalia; Butheria; Euarchontoglires;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Name=SPTBN2; Synonyms=KIAA0302;
Homo sapiens (Human).
                                            EMBL;
                                                                                                                                                                between
                                                                                                                                                                                     This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Proc. Natl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUCLEOTIDE SEQUENCE OF 1-34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
                                                                                                                                                                                                                      TISSUE SPECIFICITY: Highly expressed in bra
and liver, and at lower levels in lung and
SIMILARITY: Belongs to the spectrin family.
SIMILARITY: Contains 2 CH (calponin-homolog
SIMILARITY: Contains 1 PH domain.
SIMILARITY: Contains 17 spectrin repeats.
                                                                                                                                         European
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: Probably plays
                                                                                                                                                                                                                                                                                                                                                                                         Name=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Event=Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      skeleton.
                                                                                                                                                                                   Swiss-Prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TaxID=9606;
AB008567;
AF079569;
AF026487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103
                                                                                                                                                                                                                                                                                                                                                                    IsoId=015020-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                               IsoId=015020-1;
                                                                                                               Fuor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                               aB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Acad. Sci. U.S.A. 95:14158-14163(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                    rot entry is copyright. It is produced through Swiss Institute of Bioinformatics and the EN Bioinformatics Institute. There are no resti
BAA32700.1;
AAC80006.1;
AAC79502.1;
                                                                                                                 its
                                                                                                                 content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF 1900-2390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [LARGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Pred. No. 5.5e-18;
                                                                                                                                                                                                                                                                                                                                                                  Sequence=VSP_000722;
                                                                                                                                                                                                                                                                                                                                                                                                               Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       splicing; Named isoforms=2;
                                                                                                                 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SCALE
    111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         an'important
                                                                                                               in no way modified
                                                                                                                                                                                                                                                                        (calponin-homology)
mRNA.
mRNA.
mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ISOFORMS 1 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MRNA]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              role in
                                                                                                                                                                                                                                                                                                                                               brain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                     placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Catarrhini;
                                                                                                               and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2)
.
                                                                                                                                                                                                                                                                             domains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              neuronal
                                                                                                                                                                                                                                                                                                                                        kidney,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               beta
                                                                                                                                         restrictions
                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                located
                                                                                                                                                                a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chain
                                                                                                                                                                                                                                                                                                                                          pancreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hominidae;
                                                                                                                                    outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
                                                                                                                   18
                                                                                                                 not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
RESULT 36
Q71VG2 HUMAN
ID Q71VG2 HUMAN E
AC Q71VG2;
                                                                                                                                                                                         밁
                                                                                                       S
                                                                                                                                    Query Match
Best Local S
Matches 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GG; GG:0030138; C:COPII-coated vesicle; TAS.
(GG; GG:0030138; C:spectrin; IBP.
(GG; GG:0008091; C:spectrin; IBP.
(GG; GG:0003779; F:structural constituent of cytoskeleton; TAS.
(GG; GG:0005270; F:structural constituent of cytoskeleton; TAS.
(GG; GG:0016192; P:vesicle-mediated transport; IDA.
(GG; GG:0005200; F:structural constituent of cytoskeleton; TAS.
(GG; GG:00052017); P:vesicle-mediated transport; IDA.
(GG; GG:00052017); F:structural constituent of cytoskeleton; TAS.
(GG; GG:000520017); F:structural constituent of cytoskeleton; TAS.
(GG; GG:000520017); F:structural constituent of cytoskeleton; TAS.
(GG; GG:00052017); F:structural constituent of cytoskeleton; TAS.
(GG; GG; GG:00052017); F:structural constituent of cytoskeleton; TAS.
(GG; GG; GG:00052017); F:structural constituent of cytoskeleton; TAS.
(GG; GG; GG:00052017); F:structural constitu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00307; CH; 2.

Pfam; PF00307; CH; 1.

Pfam; PF00435; SPECTRINPH.

PRINTS; PR00633; SPECTRINPH.

SMART; SM00233; PH; 1.

SMART; SM00233; PH; 1.

SMART; SM00150; SPEC; 17.

PROSITE; PS00019; ACTININ 1; 1.

PROSITE; PS00021; CH; 2.

PROSITE; PS00021; CH; 2.

PROSITE; PS50003; PH DOMAIN; 1.

DROSITE; PS50003; PH DOMAIN; 1.

DROSITE; PS50003; PH DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cytoskeleton;
DOMAIN
DOMAIN
DOMAIN
17
                                                                                                                                                                                                                                                           REPEAT
DOMAIN
VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                 REPEAT
REPEAT
                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   H-InvDB; HIX0021762; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ensembl; ENSG00000173898; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PDB; 1WJM; NMR;
SMR; 015020; 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AF026488; EMBL; AF026488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HGNC; HGNC:11276; SPTBN2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604985;
                                                                                 103
                                                                                                          87
                                                                                                                                                  Similarity
                                                                                               LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                 LPKPTKGRMRIHCLENVDKALQFLKEQ
                                                                                                                                                                                                                                                            2390 AA;
                                                                                                                                    12.3%;
llarity 100.0%;
Conservative (
               PRELIMINARY;
                                                                                                                                                                                                                                                           ; AAC79503.1;
; AAC79504.1;
; A=2219-2328.
                                                                                                                                                                                         271295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Repeat
                                                                                                                                                                                         ME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.1
                                                                                                                                    0;
                                                                                                                                                                                                                                                                                      Spectrin 10.
Spectrin 11.
Spectrin 12.
Spectrin 13.
Spectrin 14.
Spectrin 15.
Spectrin 16.
Spectrin 17.
                                                                                                                                    Score 27; DB 1;
Pred. No. 5.5e-1
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                               Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                Spectrin
Spectrin
Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                        Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Actin-binding; Alternative splicing;
                                                                                                                                                                                                                     SCPSCSSLSVPFQKLPAADSPSFPVLPLFPGLVLCGKTGCV
RRPHQAALPV (in information)
                                                                                                                                                                                                      RRPHQAALPV (in /FTId=VSP_00072
                                                                                                                                                                                                                                             AEMSSWLRVVNAAIATASSASGEPEEPVVPSTTRGMTRAMT
MPPVSPVGAEGPVVLRSKDGREREKRFSFFKKNK -> V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA.
               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sapiens
                                                                                                                                                                                       E8C3033DD25A674C CRC64;
                                                                                 129
                                                                                                                                                                                                                                                                                                                                                                                              9 8
               51
               ₿
                                                                                                                                                  .5e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Ву
                                                                                                                                                                                                                    isoform
                                                                                                                                     0,
                                                                                                                                                              Length 2390;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                similarity).
                                                                                                                                      Indels
                                                                                                                                                                                                                    2)
                                                                                                                                    ٥,
                                                                                                                                    Gaps
                                                                                                                                    0
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
```

```
RESULT 37
Q71S06_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SQ TITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 25
      InterPro; IPR002017; Spectrin.

Pfam; PP00307; CH; 2.

Pfam; PP00435; Spectrin; 16.

SMART; SM00033; CH; 2.

SMART; SM000150; SPEC; 14.

PROSITE; PS00019; ACTININ 1; 1.

PROSITE; PS00020; ACTININ 2; 1.

PROSITE; PS00021; CH; 2.

PROSITE; PS00021; CH; 2.
                                                                                                                                                                                                                 Yu P., Che
Submitted
                                                                                                                                                                                                                                                                                                                                                            05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Name=HSpTB1;
Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                   Submitted (NOV-2000) to the EMBL; AF324064; AAQ14859.1; HSSP; Q01082; 1AA2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00307; CH; 1.
PROSITE; PS00019; ACTININ_1; 1.
PROSITE; PS50021; CH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=98111272; PubMed=9450796;
DOI=10.1046/j.1365-2141.1998.00530.x;
Garbarz M., Galand C., Bibas D., Bourni
Harousseau J.L., Grandchamp B., Dhermy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
                                                                                                                          GG; GC:0005856; C:cytoskeleton; IEA.
GG; GC:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actbind actnin.
InterPro; IPR001715; Calponin-like.
                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                Beta spectrin
                                                                                                                                                                                                                                                                                                                                                                                                        Q71S06 HUMAN PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AF013172; AAC02786.1; -; Genomi GO; GO:0003779; F:actin binding; IEA. InterPro; IPR001589; Actbind actnin. InterPro; IPR001715; Calponin-like.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "A 5' splice region G-->C mutation in exon 3 of the human beta-
spectrin gene leads to decreased levels of beta-spectrin mRNA and is
responsible for dominant hereditary spherocytosis (spectrin Guemene-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beta-spectrin (Fragment).
                                                                                                                                                                                                                                           NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                          HOMO.
                                                                                                                                                                                                                                                                                                      Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Penfao)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                      NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42 VQKKTFTKWVNSHLARVSCRITDLY
                                                                                                                                                                                                                               Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haematol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VOKKTETKWVNSHLARVSCRITDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51
51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11.4%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100:90-98(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6035 MW;
                                                                                                                                                                                                                                                                                                               Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                       Euarchontoglires;
225564 MW;
                                                                                                                                                                                                                                                                                                                                                              27,
27,
27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27,
27,
27,
                                                                                                                                                                                                                                                                                                                                                              Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                  -; mRNA.
                                                                                                                                                                                                                 EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 25;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29F9A04C2D7A8031 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
627E9616D192AE30 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bournier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                         2002
                                                                                                                                                                                                                                                                                                       Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.6e-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Devaux
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT 38
Q91ZE6_MOUSE
ID Q91ZE6_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUCLEOTIDE SEQUENCE.
NUCLEOTIDE SEQUENCE.
NEDLINE=21419653; PubMed=11528393; DOI=10.1038/ng710;
Parkinson N.J., Olsson C.L., Hallows J.L., McKee-Johnson J.,
Reogh B.P., Noben-Trauth K., Kujawa S.G., Tempel B.L.;
Keogh B.P., Noben-Trauth K. ausses auditory and motor neuropathies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q91ZE6;
01-DEC-2001
01-DEC-2001
                                                EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AY032720; AAK4901
EMBL; AY032655; AAK3873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Parkinson N.J., Olsson C.L.,
McKee-Johnson J., Noben-Traut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=C57BL/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Muridae; Murinae;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Name=Spnb4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-DEC-2001 (TrEMBLrel. 19, Creat. 01-DEC-2001 (TrEMBLrel. 19, Last. 01-DEC-2005 (TrEMBLrel. 29, Last. 01-FEB-2005 (TrEMBLrel. 29, Last. Beta4-spectrin (Beta-spectrin 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: Contains
                                          AY032704; AAK49014.1; J
AY032715; AAK49014.1; J
AY032716; AAK49014.1; J
AY032717; AAK49014.1; J
AY032718; AAK49014.1; J
AY032719; AAK49014.1; J
AY032706; AAK49014.1; J
AY032707; AAK49014.1; J
AY032707; AAK49014.1; J
AY032699; AAK49014.1; J
AY032699; AAK49014.1; J
AY032699; AAK49014.1; J
AY032699; AAK49014.1; J
AY032692; AAK49014.1; J
AY032692; AAK49014.1; J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AY032698;
AY032694;
AY032696;
                                                                                                                                                                                                                                                     AY032713;
AY032714;
AY032705;
AY032703;
                                                                                                                                                                                                                                                                                                                                                          AY032708;
AY032709;
AY032710;
                                                                                                                                                                                                                                                                                                                                                                                                             AY032697;
AY032701;
                                MGI:1890574; Spnb4.
                                                                                                                                                                                                                                                                                                                          AY032711;
AY032712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY032702; AAK49014.1;
AY032700; AAK49014.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AY032655; AAK38731.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                AY032693;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEREAVOKKTFTKWVNSHLARV 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEREAVOKKTFTKWVNSHLARV 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.J., Olsson C.L., Hallows J.L., Kujawa S.G., nson J., Noben-Trauth K., Keogh B.P., Tempel B.L.; (APR-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29:61-65(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                          AAK49014.1;
AAK49014.1;
AAK49014.1;
AAK49014.1;
AAK49014.1;
AAK49014.1;
                                                                                                                                                                                                                                                      AAK49014.
AAK49014.
                                                                                                                                                                                                                                                                                        AAK49014.
AAK49014.
AAK49014.
AAK49014.
                                                                                                                                                                                                                                                                                                                                                                                                                                                AAK49014.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAK49014.1;
AAK49014.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAK49014.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.1; -; Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 PH domain
                                                              JOINED
JO
                                                                                                                                                                                                                                                                                                                                                                                                                                                JOINED;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOINED;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOINED;
                                                                                                                                                                                                                                                                                                       JOINED;
JOINED;
JOINED;
                                                                                                                                                                                                                                                                                                                                                                                              JOINED;
JOINED;
JOINED;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -; mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 22;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                            JOINED;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hallows J.L., Keogh B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                Genomic
Genomic
Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genomic
                                                                                                                                  Genomic
                                                                                                                                                      Genomic
                                                                                                                                                                                    Genomic
                                                                                                                                                                                                        Genomic
                                                                                                                                                                                                                                                                          Genomic
                                                                                                                                                                                                                                                                                                        Genomic_DNA
                                                                                                                                                                                                                                                                                                                                                              Genomic
                                                                                                                                                                                                                                                                                                                                                                              Genomic
                                                                                                                                                                                                                                                                                                                                                                                                Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                  Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                Genomic_DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genomic_
                                                                                                                                                                                                                                        Genomic
                                                                                                                                                                                                                                                        Genomic_DNA.
                                                                                                                                                                                                                                                                                          Genomic
                                                                                                                                                                                                                                                                                                                            Genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2555 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
6.8e-13
                                                                                                                                                                                                                                                                      DNA.
                                                                                                  DNA
DNA
DNA
DNA
                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                    DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,,</u>
```

```
RESULT 39
Q8VIES_MOUSE FID Q8VIES, MOUSE FAC Q8VIES;
                        DE DE RESERVA DE LA CRESTA DE RESERVA DE CENTRA DE RESERVA DE RESE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
MGI; MGI:1890574; Spnb4.

MGI; MGI:1890574; Spnb4.

GO; GO:0030424; C:axon; IDA.

GO; GO:0043203; C:axon hillock; IDA.

GO; GO:0043203; C:axon hillock; IDA.

GO; GO:0016363; C:nuclear matrix; IDA.

GO; GO:00016363; C:nuclear matrix; IDA.

GO; GO:00016365; P:perception of sound; IMP.

BR GO; GO:0001226; P:transmission of nerve impuly

Theorem, IPR001589; Actuin actin bd.

Theorem, IPR001589; Actuin actin bd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00307; CH; 2.

Pfam; PF00435; SPectrin; 17.

Pfam; PF00435; SPECTRINPH.

PFAM; PR00683; SPECTRINPH.

SMART; SM00033; CH; 2.

SMART; SM00233; BH; 1.

SMART; SM00150; SPEC; 16.

SMART; SM00150; SPEC; 16.

PR0SITE; PS000019; ACTININ 1; 1.

PROSITE; PS00020; ACTININ 2; 1.

PROSITE; PS00021; CH; 2.

PROSITE; PS500021; CH; 2.

PROSITE; PS500031; PH_DMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eute
Mammalla; Eutheria; Euarchontoglires; Glires; Rodentia;
Muridae; Murinae; Mus.
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                       ankyrin-G
J. Cell B:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88888888
                                                                                                                                                                                                                                                        -!- SIMILARITY: Contains 1 |
EMBL; AB055618; BAB83243.1;
                                                                                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE.
MEDLINE=21666188; PubMed=11807096; DOI=10.1083/jcb.200110003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Name=Spnb4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BetaIV-spectrin sigma1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001589; Actnin_actin_bd.
InterPro; IPR001715; Calponin_act_bd.
InterPro; IPR001849; PH.
                                                                                                                                                                                                                                                                                                                                                                            Komada M., Soriano P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR011993;
InterPro; IPR002017;
                                                                                                                                                                                                                                                                                                                                [Beta]IV-spectrin regulates sodium channel clustering through nkvrin-G at axon initial segments and nodes of Ranvier.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GO:0016192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GO:0005737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 capping; Actin-binding; VCE 2555 AA; 288135 M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                                                                                                                                                    -G at axon initial segments and Biol. 156:337-348(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEREAVQKKTFTKWVNSHLARV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEREAVOKKTFTKWVNSHLARV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C:nuclear matrix; ISS.
C:PML body; ISS.
C:spectrin; ISS.
F:actin binding; ISS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Frankyrin binding; ISS.
Frankyrin binding; ISS.
Frankyrin binding; ISS.
Frankyrin binding; ISS.
Frankyrin binding; ISS.
Frankyrin binding; ISS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C:cytoplasm;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P:vesicle-mediated transport; ISS.
1589; Actnin_actin_bd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P:perception of sound; IMP. P:transmission of nerve impulse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PH. type. Spectrin. PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20,
                                                                                                                                                                                                                                                           1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Œ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 22;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cytoskeleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39FBC7E410289D45 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2; Le
8.6e-13;
                                                                    impulse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ISS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cytoskeleton; ISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2555;
                                                                    IMP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

\$\text{Q} \text{Q} \t

pancreatic

<u>1</u> ğ

```
RESULT
SPTN4_H
    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00307; CH; 2.

Pfam; PF00435; Spectrin; 17.

Pfam; PF00435; Spectrin; 17.

PRINTS; PR00633; SPECTRINPH.

SMART; SM00033; CH; 2.

SMART; SM00133; PH; 1.

SMART; SM00133; PH; 1.

SMART; SM00150; SPEC; 16.

PROSITE; PS00019; ACTININ 1; 1.

PROSITE; PS00020; ACTININ 2; 1.

PROSITE; PS00021; CH; 2.

PROSITE; PS50021; CH; 2.

PROSITE; PS50003; PH DOMAIN; 1.

ROSITE; PS5003; PH DOMAIN; 1.

SEQUENCE 2561 AA; 288809 MW; 4DF01A918014.
                                                  TISSUE=Brain;
MEDLINE=20450683; PubMed=10997877;
MEDLINE=20450683; PubMed=10997877;
Magase T., Kikuno R., Nakayama M., Hirosawa M., Ohara O.;
"Prediction of the coding sequences of unidentified human
"Prediction of the coding sequences of 100 new cDNA clones from
XVIII. The complete sequences of 100 new cDNA clones from
                                                                                                                                                                                                                       Berghs S., Agg
Hermel J.-M.,
Solimena M.;
                                                                                                                                                                                                                                                                                                                                NUCLEOTIDE SEQUENCE (ISOFORM 1).

MEDLINB=21315449; PubMed=11294830; DOI=10.1074/jbc.M009307200

MEDLINB=21315449; PubMed=11294830; DOI=10.1074/jbc.M009307200

The W.T., Tang J., Jin O., Korsgren C., John K.M., Kung A.L.,

Gwynn B., Peters L.L., Lux S.E.;

"A new spectrin, beta-IV, has a major truncated isoform that
associates with promyelocytic leukemia protein nuclear bodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPTN4 HUMAN STANDARD; PRT; 2564 AA. 094254; Q9H1K7; Q9H1K8; Q9H1K9; Q9H3GB; Q9HCD0; 28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
13-SEP-2005 (Rel. 48, Last annotation update)
Spectrin beta chain, brain 3 (Spectrin, non-ery (Beta-IV spectrin)
                                         code for large proteins i
DNA Res. 7:273-281(2000).
-!- ALTERNATIVE PRODUCTS:
                                                                                                                                                                                               and
                                                                                                                                                                                                                                   NUCLEOTIDE SEQUENCE (ISOFORMS 1; 2; 3 AND 4).
MEDLINE=20539976; PubMed=11086001; DOI=10.1083/jcb.151.5.985;
Berghs S., Aggujaro D., Dirkx R. Jr., Maksimova E., Stabach P.,
Bermel J.-M., Zhang J.-P., Philbrick W., Slepnev V., Ort T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Name=SPTBN4; Synonyms=KIAA1642, SPTBN3; Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                       nuclear matrix."
                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                      NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA]
                                                                                                                                                                               T 40
HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nterPro;
                                                                                                                                                                                                                                                                                                         Biol.
                              Event=Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37
 IsoId=Q9H254-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEREAVQKKTFTKWVNSHLARV 58
                                                                                                                                                                                                                                                                                                         Chem. 276:23974-23985(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEREAVOKKTETKWVNSHLARV 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR001849; PH.
IPR011993; PH_type.
IPR002017; Spectrin.
IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10.0%;
 Sequence=Displayed;
                           splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 22; DB 2; I
; Pred. No. 8.6e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                            Named isoforms=4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4DF01A9180140F33
                                                                                                                                                                                                                                                                                                                                                                          DOI=10.1074/jbc.M009307200;
n C., John K.M., Kung A.L.,
                                                                                                                                                      윾
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 non-erythroid
                                                                                                                                                      386-2382 (ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2561;
                                                                                                                                                                                                                                                                                                                                    nuclear bodies and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                             initial segments nervous system."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 beta
                                                                                    genes.
brain
                                                                                                                                                                                             system.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chain
                                                                                                                                                      ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                    which
                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
  MIM; 606214; -.

GO; GO:0005737; C:ruclear matrix; IDA.

GO; GO:0016363; C:nuclear matrix; IDA.

GO; GO:0016365; C:PML body; IDA.

GO; GO:00379; F:actin binding; TAS.

GO; GO:000379; F:actin binding; IDA.

GO; GO:000379; F:actin binding; IDA.

GO; GO:0005200; F:structural constituent of cy

GO; GO:0007016; P:cytoskeletal anchoring; TAS.

GO; GO:0007016; P:vesicle-mediated transport;
                                                                                                                                                                                                                                                Pfam; PF00307; CH; 2.

Pfam; PF00415; PH; 1.

Pfam; PF00415; SPECTRINP; 17.

PFINTS; PR00683; SPECTRINPH.

SMART; SM00033; CH; 2.

SMART; SM00233; PH; 1.

SMART; SM00150; SPEC; 16.

PROSITE; PS00019; ACTININ 1; 1.

PROSITE; PS00021; CH; 2.

PROSITE; PS50003; PH_DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF311855; AAG42473.1; --
EMBL; AF082075; AAG38874.1; --
EMBL; AY004226; AAF93171.1; --
EMBL; AY004226; AAF93172.1; --
EMBL; AY004227; AAF93173.1; --
EMBL; AY0042862; BAB13468.1; --
HSSP; Q01082; IBKR.
Membrane;
DOMAIN
DOMAIN
DOMAIN
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -i- SIMILARITY: Belongs to the spectrin family.
-i- SIMILARITY: Contains 2 CH (calponin-homology) domains.
-i- SIMILARITY: Contains 1 PH domain.
-i- SIMILARITY: Contains 18 spectrin repeats.
                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002017;
InterPro; IPR001605;
                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR00158
InterPro; IPR00171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HGNC; HGNC:14896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ensembl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           islets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Name=4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Swiss-Prot
                                                                                                                                                                                                                                     capping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IsoId=Q9H254-4; Sequence=VSP_000727, VSP_000728;
ISSUE SPECIFICITY: Abundantly expressed in brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IsoId=Q9H254-3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IsoId=Q9H254-2; Sequence=VSP_000725, VSP_000726;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 long as its content is in no way modified and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENSG00000160460; Homo sapiens.
NC:14896; SPTBN4.
                                                                                                                                                                                                                                                                                                                                                                                                                                IPR001849; PH.
IPR011993; PH_type.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR001589; Actnin actin bd. IPR001715; Calponin_act_bd.
 881
1019
1088
1199
1305
1410
                                                                                                61
180
309
309
429
535
644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rot entry is copyright. It is produced through a collaboration swiss Institute of Bioinformatics and the EMBL outstation - There are no restrictions on its
                                                                                                                                                                                                                                     Actin-binding;
 Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence=VSP_000723,
Actin-binding (CH 1. CH 2. Spectrin 1. Spectrin 3. Spectrin 6. Spectrin 6. Spectrin 7. Spectrin 9. Spectrin 9. Spectrin 10. Spectrin 11. Spectrin 11.
                                                                                                                                                                                                                                       Alternative splicing; Cytoskeleton;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA.
mRNA.
mRNA.
mRNA.
mRNA.
mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transport; TAS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAS.
                                                                                                                                                                                                            (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VSP_000724,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cytoskeleton;
                                                                                                                                                                                                             similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
```

÷

```
RESULT

OTTO

OTTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin act_bd.
InterPro; IPR001715; Calponin act_bd.
InterPro; IPR002017; Spectrin.
InterPro; IPR002017; Spectrin_PH.
InterPro; IPR001605; Spectrin_PH.
Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 17.
PRINTS; PR00683; SPECTRINPH.
SMART; SM00033; CH; 2.
SMART; SM00033; CH; 2.
SMART; SM00033; CH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
DOMAIN
                                                                                                                                                                                                                                           EMBL; AF324063; AAQ14860.1; -; mRNA.
HSSP; Q01082; 1AA2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                  NCBI
                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Euarchonto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-JUL-2004 (TrEMBLrel. 27, Created)
05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
Non-erythrocytic beta-spectrin 4.
                                                                                                                                                                                                                                                                                                         Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Name=SPNB4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q71S07_HUMAN
Q71S07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HUMAN
                                                                                                                                                                                                                                                                                                                                                                            _TaxID=9606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEREAVQKKTFTKWVNSHLARV 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEREAVOKKTFTKWVNSHLARV 78
                                                                                                                                                                                                                                                                                        (NOV-2000) to the EMBL/GenBank/DDBJ ARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
714
1189
1193
1331
2564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1621
1727
1834
1942
2048
2418
                                                                                                                                                                                                                                                                                                                                              SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  608
714
1189
1193
1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1725
1832
1940
2046
2107
2527
1257
 ACTININ_1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1286
                                                                                                                                                                                                                                                                                                                                                                                                                Euarchontoglires;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nonmr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /FTId=VSP_000728.
Missing (in Ref. 2).
L -> S (in Ref. 2).
E -> K (in Ref. 2).
E -> K (in Ref. 2).
G -> S (in Ref. 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spectrin
Spectrin
Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 22;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /Missing (in isoform 3).
/FTIG-500773.
AVQAAEGLER_QONTYEGEQAQEAVTRILEK
SAPSIGTPIPPQIQQLEARHR (in isof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /FTId=VSP 000724.
NQENQLRAQQWMQKLHDQLELQH -
PPYLPRSSS (in isoform 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Missing (in isoform 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IEKIKAEQSKQPPTPLLGRKFFGDPTELAAKAAPLLRPGGY

B -> PRREDHLNPGVQDQPWQHTEKPSLPKPKANKEKTAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dissing (in isoform 2).
FTId=VSP_000726.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FTId=VSP_000727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTId=VSP_000725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52CDE7D11D601ECC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (in isoform 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.
15.
16.
17.
                                                                                                                                                                                                                                                                                                                                                                                                                  Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1; 1
8.6e-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   isoform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLIIHPALLHPPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -> MPHYPSCS form 3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

RESULT 43

SPTCB DROWE STANDARD; PR
ID SPTCB DROME STANDARD; PR
AC Q00963; Q9VX30;
DT 01-APR-1993 (Rel. 25, Created)
DT 16-CCT-2001 (Rel. 40, Last seque
DT 10-MAY-2005 (Rel. 47, Last annot
DE Spectrin beta chain.
GN Name-beta-Spec; Synonymms-Spec-b;
OS Drosophila melanogaster (Fruit f

Name=beta-Spec; Synonyms=Spec-b; ORI Drosophila melanogaster (Fruit fly)

Synonyms=Spec-b; ORFNames=CG5870;

sequence up

update)

update)

2291

₽

```
밁
                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SARRR
                                           Query Match
Best Local S
Matches 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                  Pfam; PP00307; CH; 2.
Pfam; PP00307; CH; 2.
SMART; SM00033; CH; 2.
SMART; SM00033; CH; 2.
SMART; SM00130; SPEC; 10.
PROSITE; PS000019; ACTININ 1; 1
PROSITE; PS00020; ACTININ 2; 1
PROSITE; PS00020; ACTININ 2; 1
PROSITE; PS00020; ACTININ 2; 1
PROSITE; PS00020; CH; 2.
PROSITER 1410 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q6NNX2 DROME | Q6NNX2; | 05-JUL-2004 (; 05-JUL-2004 (; )
                                                                                                                                                                                                                                                                                        Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Chawge M., Chavez C., Dorsett V., Dresek D., Farfan D., Frii George R., Gonzalez M., Guarin H., Kronmiller B., Li P., Liac Miranda A., Mungall C.J., Nunco J., Pacleb J., Paragas V., Patel S., Phouanenavong S., Wan K., Yu C., Lewis S.E., Rubin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00020; ACTININ_2; 1.
PROSITE; PS500021; CH; 2.
PROSITE; PS500021; CH; 2.
Actin capping; Actin-binding; Cytoskeleton.
SEQUENCE 2564 AA; 289061 MW; CB1CACB2FF977776 CRC64;
                                                                                                                                                                                                                                Submitted (DEC-2003) to the EMBL/Gen EMBL; BT011160; AAR82828.1; -; mRNA. HSSP; Q01082; 1AA2.
GO; GO:0003779; F:actin binding; IEA
                                                                                                                                                                                            InterPro; IPR001589; Actbind actnin.
InterPro; IPR001715; Calponin-like.
InterPro; IPR002017; Spectrin.
                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster (Fruit fly).
Bukaryota; Metazoa; Arthropoda; Hexapoda; Inse
Neoptera; Endopterygota; Diptera; Brachycera;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                 Celniker S.;
                                                                                                                                                                                                                                                                                                                                                   NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                               AT24411p (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-JUL-2004 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         37
84
                     75
                                            19;
                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
            LIKLLEVLSGERLPKPTKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEREAVOKKTFTKWVNSHLARV 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEREAVOKKTFTKWVNSHLARV
LIKLLEVLSGERLPKPTKG
                                                                                         1410 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                           8.6%;
larity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                         164827 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         27,
27,
27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 22; DB; Pred. No. 8.6
0; Mismatches
                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>
                                                                                                                                                                                                                                                                      EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                      Score 19;
Pred. No.
                                                                                                                             ___
102
                     93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       58
                                              Mismatches
                                                                                         3346E537C78AA48B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
8.6e-1
                                                                  DB 2;
                                                         6.1e-10;
                                                                                                                                                                                                                                                                                                                                                                                                              Insecta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                   Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
•
                                              0
                                                                 Length 1410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2564;
                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                             Pterygota;
                                                                                                                                                                                                                                                                                                        Liao G.,
                                                                                                                                                                                                                                                                                                                              n J.,
Frise
                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                               .
Е
                                                                                                                                                                                                                                                                                                        :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                              Gaps
                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
Addams M.D., Calniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Addams M.D., Celniker S.E., Li P.W., Hoskins R.A., Gocayne J.D.,
RA Addams M.D., Celniker S.E., Holt R.M., Hoskins R.A., Gocayne J.D.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Barlew R.M., Royle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley S.M.,
Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Ghallew R.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Poslio K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Harris N.L., Harvey D.A., Heiman T.J., Hernandez J., Harris M.,
RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kunison J.A., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
Lasko P., Lei Y., Levitsky A.A., Li J.H., Li Z., Liang Y., Lin X.,
RA Menkilov G., Milshina N.V., Mobarry C., Morris J., Moshreti A.,
RA Mennett K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Mennett K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Mennett K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skrong A.H., Wang A.H., Wang S., Yao Q.A.,
RA Mennett R., Woodage T., Worley K.C., Mu D., Yang S., Yao Q.A.,
RA Mennett R., Shen B., Ra Weinstcok G.M., Weissembach J.,
RA Zheng X.H., Woodage T., Worley K.C., Mu D., Zhang G., Zhao Q., Zheng L.,
RI, Schen S. W., Rober B., Rabin G.M., Venter S., Suith H.O.,
Ra Jeng X.H., Zhong F.N., Zhong W., Zhong S., Zhao Q., Zheng L.,
RI, Schen S., Shen H., Rabin G.M., Venter J.C.,
Ra Jeng R.H., Wang S., Wao Q., Jeng L.,
Ra Jeng R.H., Wang S
                                                                                                                                                                                                                                                                                                                                                                        Ye J., Yen S., Thong F.N., Thong X.H., Zhong Y.H., Zhong F.N., Rubin G. Gibbs R.A., Myers E.W., Rubin G. "The genome sequence of Drosop! Science 287:2185-2195(2000).
                                                                                                                                                                                                                 MEDLINE=22426069; PubMed=12537572;
Misra S., Crosby M.A., Mungall C.J., Matthews B.B., Campbell K.S.,
Hradecky P., Huang Y., Kaminker J.S., Milburn G.H., Prochnik S.B.
Smith C.D., Tupy J.L., Whitfield E.J., Bayraktaroglu L., Berman B.
Bettencourt B.R., Celniker S.B., de Grey A.D.N.J., Drysdale R.A.,
Harris N.L., Richter J., Russo S., Schroeder A.J., Shu S.Q.,
Staplecon M., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M.,
                       Dubreuil R., Byers T.J., Branton D., Goldsi "Drosophilia spectrin. I. Characterization J. Cell Biol. 105:2095-2102(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUCLEOTIDE SEQUENCE [MRNA].

MEDLINE=9235263; PubMed=1631106;

MEDLINE=91235263; PubMed=1631106;

Byers T.J., Brandin E., Lue R., Winograd E., Brantc

"The complete sequence of Drosophila beta-spectrin

motifs complising eight 106-residue segments.";

Proc. Natl. Acad. Sci. U.S.A. 89:6187-6191(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ephydroidea; Dr
NCBI_TaxID=7227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=20196006; PubMed=10731132; DOI=10.1126/science.287.5461.2185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
                                                                               MEDLINE=88059242; PubMed=3680372;
                                                                                                                                                                                      "Annotation of the
                                                                                                                                                                                                         S.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Endopterygota; Diptera; Brachycera; Muscomorpha; ea; Drosophilidae; Drosophila.
                                                                                                                                                        .. or the Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                              3:RESEARCH0083.1-RESEARCH0083.22(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [LARGE SCALE GENOMIC DNA]
                                                                                                                                                                                  melanogaster
                                                            DOI=10.1083/jcb.105.5.2095;
D., Goldstein L.S.B., Kiehar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E., Branton
                                           얁
                                                                                                                                                                                  euchromatic
                                         the
                                         purified protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          reveals supra-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.;
                                                                                                                                                                                  genome:
                                                              Kiehart D.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            s G.L.c
                                                                                                                                                                                                                                                                                  B.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           K.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ¥ 70
    SMART; SM00150; SPE
PROSITE; PS00019; A
PROSITE; PS00020; A
PROSITE; PS50021; C
PROSITE; PS50003; E
                                                                                                                                                                                                       Cytoskel
DOMAIN
DOMAIN
DOMAIN
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agu
                                                                                                                                                                                                                                                3D-structure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This
                                                                                                                                                                                                                           leton;
```

Membrane;

PH_DOMAIN; capping;

<u>سر</u> سر

Actin-binding; Calmodulin-binding;

Эy

similarity)

154 271 408 522 633 739 844 950 1057 1167

Actin-binding CH 1. CH 2. Spectrin 1. Spectrin 2. Spectrin 4. Spectrin 5. Spectrin 6. Spectrin 7. Spectrin 7. Spectrin 8.

```
InterPro; IPR002017; Spectrin.
InterPro; IPR001605; Spectrin_I
Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 17.
PFINING; PR00683; SPECTRINPH.
SMART; SM00033; CH; 2.
SMART; SM00033; PH; 1.
SMART; SM00233; PH; 1.
SMART; SM00230; PGC; 17.
PR0SITE; PS000019; ACTININ_2; 1
PROSITE; PS000020; ACTININ_2; 1
PROSITE; PS000020; ACTININ_2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ensembl; CG5870; Drosophila
FlyBase; FBgn0003471; beta-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ensembl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Structure 3:1185-1195(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=96164435; PubMed=8591029; DOI=10.1016/S0969-2126(01)00254-4; Zhang P., Talluri S., Deng H., Branton D., Wagner G.; "Solution structure of the pleckstrin homology domain of Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hase; regression of the control of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            European
as long a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the N-terminus of the beta subunit.
INTERACTION:
Q9VTZ4:CG10627; NbExp=1; IntAct=EBI-75025, SIMILARITY: Belongs to the spectrin family.
SIMILARITY: Contains 2 CH (calponin-homology SIMILARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the erythrocyte plasma membrane. Interacts with calmodulin in a calcium-dependent manner.

SUBUNIT: Native spectrin molecule is a tetramer composed of two antiparallel heterodimers joined head to head so that each end c the native molecule includes the C-terminus of the alpha subunit and the N-terminus of the beta subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION: Spectrin is the major constituent of the cytoskeletal network underlying the erythrocyte plasma membrane. It associate with band 4.1 and actin to form the cytoskeletal superstructure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GO:0030721; P:spectrosome organization erPro; IPR001589; Actnin_actin_bd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , M92288; AAA28399.1; -; mRNA.
; AE003506; AAF48751.1; -; Gen
A46147; A46147.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: Contains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Swiss-Prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1DRO; NMR; @=2145-2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wiss-Prot entry is copyright. It is produced through n the Swiss Institute of Bioinformatics and the EN ropean Bioinformatics Institute. There are no restrong as its content is in no way modified and this e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q00963; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR001849;
IPR011993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR001715;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF 2145-2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PH.
type.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actnin actin bd.
Calponin_act_bd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       beta-Spec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 spectrin repeats
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (calponin-homology) domains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alpha subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         associates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
```

REPEAT REPEAT REPEAT

REPEAT REPEAT

Spectrin Spectrin Spectrin

10 11 12 13

3

٠.

Spectrin Spectrin Spectrin

3

```
RESULT 44
Q9TRS2_PIG
밁
                            á
                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9TRS2_PIG
Q9TRS2;
01-MAY-2000
                                                                                                                                                                           PIR; S21195; S21195.
HSSP; Q15149; 1MB8.
GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actbind actnin.
PROSITE; PS00019; ACTININ_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
STRAND
                                                                                                                                   NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
REPEAT
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
HELIX
                                                                                                                                                                                                                                                                                                       PROTEIN SEQUENCE.
MEDLINE=92209538; PubMed=1555607;
Frappier T., Derancourt J., Pradel L.A.;
"Actin and neurofilament binding domain of the company of the c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
Spectrin_beta_SUBUNIT=28 kDa fragment (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TURN
                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sus scrofa (Pig)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REPEAT
                                                                                                                                                                                                                                                                                            subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75
                              37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19;
4
                                                                l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h 8.6%; Sc
Similarity 100.0%; F
19; Conservative 0;
                                                                                                                                                                                                                                                                          Biochem. 205:85-91(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LIKTLEVLSGERLPKPTKG 93
                     DEREAVOKKTFTKWVNS 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LIKLLEVLSGERLPKPTKG 102
DEREAVOKKTFTKWVNS 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1169
1275
1380
1487
1593
1699
1806
1912
2018
                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2291 AA;
                                                                Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                   20
0 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1273
1378
1485
1591
1697
1697
1910
2016
2016
22078
22278
22278
22157
22167
22167
                                                                                                                                   20
2322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                Chordata; Craniata; Vertebrata; Euteleostomi; Laurasiatheria; Cetartiodactyla; Suina; Suida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       265739 MW;
                                                                                                    7.7%;
                                                                Score 17; DB; Pred. No. 1. 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 19;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Spectrin
Spectrin
                                                                                                                                     F23D09A9EA01FF1E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCDFB0C548BBC39B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y (in Ref.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
15
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Le
9.7e-10;
                                                                1.2e-09;
hes 0;
                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                         of brain spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2291;
                                                                                               Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                    Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٥,
                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                0
```

```
RESULT 45
Q28297 CANFA PRELIMINARY;
ID Q28297;
AC Q28297;
DT 01-NOV-1996 (TremBirel. 01,
DT 01-NOV-1996 (TremBirel. 01,
                                                                                                                                                                                                                    RESULT 46
Q7PSH4 ANOGA
ID Q7PSH4 A
AC Q7PSH4;
DT 01-MAR-2
DT 01-MAR-2
  밁
                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                        01-MAR-2004 (TrEMBLrel. 26, Created)
01-MAR-2004 (TrEMBLrel. 26, Last sequence update)
01-MAR-2004 (TrEMBLrel. 26, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=93176817; PubMed=8439565; DOI=10.1016/0167-4781(93)90299-S; Tan S., Shankar V., Gilmore M.S., Sachdev G.P.; "Nucleotide sequence of a cDNA for cannine beta-spectrin reveals hig evolutionary conservation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-JUN-2003 (TrEMBLrel. 24,
                                                                                                                             Neoptera; Endopterygota; Diptera; Nematocera; Culicoidea; Culicidae; Anophelinae; Anopheles.
                                                                                                                                                   Anopheles gambiae str. PEST.

Bukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP; Q62261; 1BTN.
SMR; Q28297; 543-648.
Ensembl; ENSCAFG00000002744; Canis familiaris.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochim. Biophys. Acta 1172:217-219(1993)
-!- SIMILARITY: Contains 1 PH domain.
EMBL; L02897; AAA30879.1; -; mRNA.
PIR; S29854; S29854.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Beta-spectrin (Fragment).
Canis familiaris (Dog).
NUCLEOTIDE SEQUENCE STRAIN=PEST;
                                       Submitted
                                                  The Anopheles gambiae Sequence Committee; "Anopheles gambiae re-annotation.";
                                                                            STRAIN-PEST;
                                                                                                                                                                    ORFNames=ENSANGG00000010018;
Anopheles gambiae str. PEST.
                                                                                                                                                                                              ENSANGP00000012507
                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS50003; PH_DOMAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR00683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001849; PH.
InterPro; IPR011993; PH_type.
InterPro; IPR002017; Spectrin.
InterPro; IPR001005; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GO; GO:0016020; C:membrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE=Tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Canis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia; Eutheria; Laurasiatheria; Carnivora; Fissipedia; Canidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
                                                                                        NUCLEOTIDE SEQUENCE.
                                                                                                                 NCBI_TaxID=180454;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                               141 RRQQEEEERKRRPPSP 156
                                                                                                                                                                                                                                                             ANOGA PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SM00233; PH; 1.
SM00150; SPEC; 4.
                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                            RRQQEEEERKRRPPSP
                                      (APR-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                   707 AA;
                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPECTRINPH
                                                                                                                                                                                                                                                                                                                                                                                                                                   81118 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                             7.3%; Score 16; 100.0%; Pred. No.
                                       င်
                                        the
                                                                                                                                                                                                                                                                                                                               446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
                                       EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                   D1D6C6CD2108D459 CRC64;
                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                              2296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               707
                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                               3.9e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                        Length 707;
                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 reveals high
                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

0,

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Adailon O., Aury J.M., Brunet F., Petit J.L., Stange-Thomann N.,
A Mauceli E., Bouneau L., Fischer C., Ozouf-Costaz C., Bernot A.,
A Nicaud S., Jaffe D., Fisher S., Lutfalla G., Dossat C., Segurens B.,
A Nicaud S., Jaffe D., Fisher S., Lutfalla G., Dossat C., Segurens B.,
A Anthoused C., Salanoubat M., Levy M., Boudet N., Castellano S.,
A Anthoused V., Jubin C., Castelli V., Katinka M., Vacherie B.,
A Anthoused V., Jubin C., Castelli V., Roulain J., De Berardinis V.,
A Cruaud C., Duprat S., Brottler P., Coutanceau J.P., Gouzy J.,
A Cruaud C., Duprat S., Brottler P., Coutanceau J.P., Gouzy J.,
A Cruaud C., Lardier G., Chapple C., McKernan K.J., McEwan P., Bosak S.,
A Parra G., Lardier G., Chapple C., McKernan K.J., McEwan P., Bosak S.,
A Kellis M., Volff JN., Guigo R., Zody M.C., Mesirov J.,
A Lindblad-Tok K., Birren B., Nusbaum C., Kahn D., Robinson-Rechavi M.,
A Laudet V., Schachter V., Quetier F., Saurin W., Scarpelli C.,
Mincker P., Lander B.S., Weissenbach J., Roest Crollius H.;
"Genome duplication in the teleost fish Tetraodon nigroviridis reveals
"The early vertebrate proto-karyotype.";
Nature 431:946-957(2004).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin act_bd.
InterPro; IPR001849; PH.
InterPro; IPR001849; PH.
InterPro; IPR00193; PH type.
InterPro; IPR001017; Spectrin.
InterPro; IPR001605; Spectrin_PH.
InterPro; IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q4RFW3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00435; Spectrin; 17.
PRINTS; PR00683; SPECTRINH 1; 1.
PROSITE; PS00019; ACTININ 2; 1.
PROSITE; PS00020; ACTININ 2; 1.
PROSITE; PS500021; CH; 2.
PROSITE; PS50003; PH DOMAIN; 1.
Actin capping; Actin-binding; Cytoskeleton.
SEQUENCE 2296 AA; 266023 MW; 1B1974EB0F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tetraodon nigroviridis (Green puffer).

Bukaryota; Metazoa; Chordata; Cranitata; Vertebrata; Euteleostomi;

Actinopterygii; Neopterygii; Teleostei; Buteleostei; Neoteleostei;

Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;

Tetradontoidea; Tetraodontidae; Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13-SEP-2005 (TrEMBLrel. 31, Created)
13-SEP-2005 (TrEMBLrel. 31, Last sequence update)
13-SEP-2005 (TrEMBLrel. 31, Last annotation update)
13-SEP-2005 (TrEMBLRel. 31, Last annotation update)
Chromosome 16 SCAP15113, whole genome shotgun seque
ORFNames=GSTENG00035151001;
                                                      Genoscope; Whitehead Institute Submitted (FEB-2004) to the EMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AAAB01008823;
HSSP; Q01082; 1BKR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The Anopheles
Submitted (API
                                                                                          NUCLEOTIDE SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=99883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47
TETNG
                 CAUTION: The sequence shown here is der
EMBL/GenBank/DDBJ whole genome shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary data.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL/GenBank/DDBJ whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TETNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MRIHCLENVDKALQFL 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MRIHCLENVDKALQFL 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (APR-2004) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The sequence shown here is derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gambiae Sequence Committee;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EAA05634.2; -; Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.3%;
                 ute Centre for Genome Research;

EMBL/GenBank/DDBJ databases;

hown here is derived from an

genome shotgun (WGS) entry whi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 16; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome shotgun (WGS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome shotgun sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1B1974EE0F7F4EF0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.2e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               an
                   which
                                                                                                                                                                                                                                           / J.,
P., Bosak S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                          X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
       Pfam; PF00307; CH; 2.

Pfam; PF00169; PH; 1.

Pfam; PF00435; Spectrin; 1.

PRINTS; PR00683; SPECTRINP;
SMART; SM00033; CH; 2.

SMART; SM00033; CH; 1.

SMART; SM00150; SPEC; 17.

PROSITE; PS00019; ACTININ
PROSITE; PS00010; ACTININ
 PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                            -i- SIMILARITY: Contains 1 PH domain.
EMBL; AF166170; AAD49859.1; -; mRNA.
EMBL; AF261891; AAF72996.1; -; mRNA.
EMBL; U64854; AAF77611.1; -; Genomic_DNA.
HSSP; Q01082; 1BKR.
Ensembl; K11C4.3; Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                   structure.",
J. Cell Biol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Moorthy S., Chen L., Bennett V.; "Caenorhabditis elegans beta-G spectr establishment of epithelial polarity,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 13-SEP-2005 (TrEMBLrel. 31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; CAAE01015113; CAG12719.1; -; Genomic_DNA.
SEQUENCE 129 AA; 14599 MW; C5B34F14E04E7E1C CRC64;
                                                                                                                                            InterPro; IPR001589; Actnin_actin_
InterPro; IPR001715; Calponin_act_
InterPro; IPR001849; PH_
InterPro; IPR011993; PH_type.
                                                                                                                                                                                            WormBase; WBGene00006803; K11C4.3.
WormPep; K11C4.3a; CE28604.
GO; GO:0003779; F:actin binding; I
                                                                                                                                                                                                                                                                                                       Science
                                                                                                                                                                                                                                                                                                                             The C. elegans sequencing consortium; "Genome sequence of the nematode C. e
                                                                                                                                                                                                                                                                                                                                                                 NUCLEOTIDE SEQUENCE [LARGE SCALE STRAIN=Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEOTIDE SEQUENCE.
MEDLINE=20273916; Pu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Name=bgs-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Beta-G spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q909J7_CAEEL
Q909J7;
                                                                                                                       InterPro; IPR002017;
InterPro; IPR001605;
                                                                                                                                                                                                                                                                                                      investigating biology.";
Science 282:2012-2018(1998).
                                                                                                                                                                                                                                                                                                                                                       MEDLINE=99069613; PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                                            "Mutations in beta-spectrin disrupt axon
                                                                                                                                                                                                                                                                                                                                                                                                                                      Hammarlund M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  neuronal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cell.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41 AVQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                    Biol. 149:931-942(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    function.";
Biochem. 149:915-930(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synonyms=unc-70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peloderinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Davis W.S., Jorgensen E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RMBLrel. 13, Last sequence update)
SMBLrel. 31, Last annotation update)
(Beta-spectrin) (Uncoordinated protein
ACTININ_1;
ACTININ_2;
CH; 2.
                                                                        SPECTRINPH
                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=10811832; DOI=10.1083/jcb.149.4.931; vis W.S., Jorgensen E.M.;
                                                                                                                  PH. type.
Spectrin.
Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 15;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORFNames=K11C4.3;
            <u>ب</u> ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                    n_bd
Agi
                                                                                                                                                                                                                                                                                                                                                                              GENOMIC
                                                                                                                                                                                                                                                                                                                              elegans: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             but
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.1e-07
                                                                                                                                                                                                                                                                                                                                                                                                                           outgrowth and sarcomere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s dispensable essential for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
                                                                                                                                                                                                                                                                                                                             platform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                isoform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
```

product and the second

```
Q95ZL8 CAEEL
ID Q95ZL8 CAEEL
ID Q95ZL8;
AC Q95ZL8;
DT 01-MAR-2
DT 01-MAR-2
DT 01-MAR-2
DE Uncoordi
GN Name=unc
OS Caenorha
OC Eukaryot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQUETE CONTRACTOR OF THE CONTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00307; CH; 2.
Pfam; PF00307; CH; 1.
Pfam; PF00435; SPECTIN; 17.
Pfam; PF00435; SPECTIN; 17.
PRINTS; PR00633; SPECTRINPH.
SMART; SM00033; CH; 2.
SMART; SM00233; PH; 1.
SMART; SM00150; SPEC; 17.
PROSITE; PS00020; ACTININ 1; 1.
PROSITE; PS00020; ACTININ 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Actin capping;
NON TER 1
SEQUENCE 2299
             Q55ZL8_CAEEL PRELIMINARY; PRT; 2302 AA.
Q95ZL8;
Q1-DEC-2001 (TrEMBLrel. 19, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
Uncoordinated protein 70, isoform b.
Name=unc-70; ORFNames=K11C4.3;
Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The C.briggsae Sequencing Consortium;
Submitted (SEP-2003) to the EMBL/GenBank/DDBJ databases
-!- SIMILARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GO; GO:0003779; F:actin binding; IEA.
InterPro; IPR001589; Actnin actin bd.
InterPro; IPR001715; Calponin_act_bd.
InterPro; IPR001849; PH.
InterPro; IPR002017; Spectrin.
InterPro; IPR001605; Spectrin_PH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q60WP8_CAEBR PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS50003; PH_DOMAIN; 1.
Actin capping; Actin-binding; Complete proteome; Cytoskeleton.
SEQUENCE 2257 AA; 262228 MW; E1393B6D0914D803 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Caenorhabditis briggsae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hypothetical protein CBG19038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-OCT-2004 (TrEMBLrel. 25-OCT-2004 (TrEMBLrel.
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS50021; CH; 2. PROSITE; PS50003; PH_DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Name=CBG19038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CBI_TaxID=6238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAEBR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAC01000098; CAE71967.1; -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42 VQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                               38
                                                                                                                                                                                                                                                                                                                                                                                              42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                              VOKKTETKWVNSHL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2299 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.4%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Actin-binding; Hypothetical protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267209 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28, Created)
28, Last sequence update)
28, Last annotation update)
38(Fragment).
                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 14; DB 2; L; Pred. No. 0.00014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 14; DB 2; ; Pred. No. 0.0001
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              356A42856E3A4462 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genomic_DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2299 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
Pfam; PF00307; CH; 2.
Pfam; PF00169; PH; 1.
Pfam; PF00435; Spectrin; 17.
Pfam; PF00435; Spectrin; 17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rhabditidae; Peloderinae; Caenorhabditis.
NCBI_TaxID=6239;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUCLEOTIDE SEQUENCE [LARGE SCALE GENOMIC DNA]. STRAIN-Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                             -|- SIMILARITY; Contains 1 PH domain.
EMBL; U64854; PAK77612.2; -; Genomic_DNA
HSSP, Q01082; 1BKR.
Ensembl; K11C4.3; Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science 282:2012-2018(1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The C. elegans sequencing consortium; "Genome sequence of the nematode C. e
                                                                                                                                                                                                                                                                                                                                        GO; GO:003779; F:actin binding; IEA.
InterPro; IPR001589; Actnin actin_bd.
InterPro; IPR001715; Calponin_act_bd.
                                                                                                                                                                                                                                                                                                                                                                                     WormBase; WBGene00006803; 1
WormPep; K11C4.3b; CE30159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=99069613; PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 investigating biology
                                                                                                                                                                                                                                                                                        [nterPro; IPR001605;
                                                                                                                                                                                                                                                                                                  InterPro; IPR002017;
                                                                                                                                                                                                                                                                                                                   [nterPro; IPR011993;
                                                                                                                                                                                                                                                                                                                               InterPro; IPR001849;
 41
VQKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                              PH_type.
                                                                                                                                                                                                                                                                                     Spectrin_PH.
                                                                                                                                                                                                                                                                                                    Spectrin.
  54
                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                   K11C4.3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 elegans: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               platform
                                                     Gaps
```

Search completed: March time 285 весв 4, 2006, 07:10:11 Ś

0

밁

loigzuj Anold Seoy zini

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring-table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Word-size :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        score greater than and is derived by \varepsilon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Published Applications AA New:*

1: /cgn2 6/ptodata/1/pubpaa/US08

2: /cgn2-6/ptodata/1/pubpaa/US07

3: /cgn2-6/ptodata/1/pubpaa/US07

4: /cgn2-6/ptodata/1/pubpaa/US07

5: /cgn2-6/ptodata/1/pubpaa/US10

6: /cgn2-6/ptodata/1/pubpaa/US10

7: /cgn2-6/ptodata/1/pubpaa/US11

8: /cgn2-6/ptodata/1/pubpaa/US11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-695-994A-7
220
1 MELQRTSSISGPLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   į
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            135346 ведв,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OLIGO
Gapop 60.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Listing first 1000 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
                                                                                                                νουνουσουσουσαφοισουσο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MELORTSSISGPLSPAYTGQ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the number of results predicted by 
r than or equal to the score of the 
ed by analysis of the total score di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4, 2006, 07:11:46;
          GenCore version (c) 1993 - 2006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gapext 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       몂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20000420
        $\( \text{S-10-995-561-778} \)
$\( \text{S-10-995-561-773} \)
$\( \text{S-10-995-561-774} \)
$\( \text{S-10-995-561-779} \)
$\( \text{S-10-995-561-779} \)
$\( \text{S-11-06-932-13} \)
$\( \text{S-11-06-932-13} \)
$\( \text{S-11-087-099-4181} \)
$\( \text{S-11-087-099-4181} \)
$\( \text{S-11-087-099-4181} \)
$\( \text{S-11-087-099-4561-700} \)
$\( \text{S-11-095-561-700} \)
$\( \text{S-11-095-561-700} \)
$\( \text{S-11-072-512-3479} \)
$\( \text{S-11-072-512-3479} \)
$\( \text{S-11-072-512-3479} \)
$\( \text{S-11-072-528-11} \)
$\( \text{S-11-0873-528-11} \)
$\( \text{S-11-128-572-22} \)
$\( \text{S-11-128-572-22} \)
$\( \text{S-11-128-572-22} \)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mode1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Search time 20 Seconds (without alignments) 220.005 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.1.7
Biocceleration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . QNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chance to have
result being p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
    sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            printed,
    778, App
771, App
771, App
771, App
774, App
775, App
775, App
7763, App
7702, App
7702, App
7704, App
7704, App
7705, App
7707, App
7707, App
7707, App
7708, App
7709, App
770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  220
        \\ \text{C1} \text{C1} \text{C1} \text{C2} \text{C2} \text{C3} \te
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
15
15
15
15
10
10
10
113
113
113
US-11-045-024-10720
US-11-045-024-10720
US-11-045-024-1249
US-11-045-024-1249
US-11-045-024-1249
US-11-045-024-1249
US-11-045-024-123516
US-11-045-024-123516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-045-024-13516
US-11-055-822-146
US-11-055-822-146
US-11-055-822-146
US-11-055-827-146
US-11-055-827-146
US-11-087-099-588-194
US-11-087-099-588-194
US-11-087-099-491
US-11-087-099-491
US-11-087-099-4492
US-11-087-099-4492
US-11-087-099-1100
US-11-087-099-1100
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11105
US-11-087-099-11106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S-11-045-024-3576
S-11-045-024-5023
S-11-045-024-6897
  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9 4420, 1
9 6943, 1
9 6943, 1
9 8943, 1
9 3180, 1
1 11361, 1
2 Appli
11081, A
10406, A
10800, A
11080, A
1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12853, A
13348, A
13348, A
13515, A
13515, A
13516, A
13516, A
28, Appl
724, Appl
724, Appl
744, App
194, Appl
7788, App
194, Appl
7788, App
194, Appl
5484, Appl
5484, Appl
5589, Ap
2102, Ap
2102, Ap
2102, Ap
2102, Ap
2102, Ap
2104, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14001,
3582, 1
5043, 1
10716,
12492,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3576,
5023,
6897,
```

250, App 52, Appl 54, Appl 9594, Ap 1303, Appl 11262, Ap 1262, Ap 120, Ap 121, App 281, App

```
\alpha
  US-11-072-512-356
US-11-087-657-8783
US-10-821-234-166
US-11-087-099-236
US-11-087-099-236
US-11-087-099-8118
US-10-997-360A-523
US-11-098-666-1132
US-11-098-666-11339
US-11-115-639-4
US-11-098-666-11339
US-11-115-639-3
US-
 Sequence
873, Appli

873, Appli

1606, Appli

2368, Appli

2368, Appli

26, Appli

274, Appli

275, Appli

277, Appli

277,
                                                                                           US-10-995-561-773

(US-10-995-561-773)

(Sequence 773, Application US/10995561)

(Publication No. US20050272054A1)

(GENERAL INFORMATION:
APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS AS
TITLE OF INVENTION: CARDIOVASCULAR DISORDER
TITLE OF INVENTION: DETECTION AND USES THER
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 773
LENGTH: 3803
TYPE: PRT
ORGANISM: Homo sapiens
US-10-995-561-773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 778, Application US/1099561

| Publication No. US20050272054A1
| Publication No. US20050272054A1
| GENERAL INFORMATION:
| APPLICANT: CARGILL, Michele et al.
| TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
| TITLE OF INVENTION: DETECTION AND USES THEREOF
| TITLE OF INVENTION: DETECTION AND USES THEREOF
| TITLE OF INVENTION UDBER: US/10/995,561
| CURRENT APPLICATION NUMBER: US/10/995,561
| CURRENT FILING DATE: 2004-11-24
| NUMBER OF SEQ ID NOS: 85702
| SOFTMARE: FastSEQ for Windows Version 4.0
| SEQ ID NO 778
| LENGTH: 1452
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; TYPE: PRT
; ORGANISM: Homo
US-10-995-561-778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
US-10-995-561-778
                     Ş
   밁
                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 11
                                                  Query Match
Best Local Similarity
Matches 11; Conser
                                                                                                                                                                                                                                                                                                                                                                             42
     79
                42 VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                      l Similarity
11; Conserv
                                                                                                                                                                                                                                                                                                                                                                        VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                       VOKKTETKWVN
   VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                      5.0%; Scilarity 100.0%; F
Conservative 0;
                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                                                                                                                               Michele et al.
GENETIC POLYMORPHISMS ASSOCIATED WITH
GENETIC POLYMORPHISMS ASSOCIATED WITH
CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS
DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1907
1976
1976
2117
2515
2640
2647
2657
3674
8746
                                                             5.0%;
                                                                                                                                                                                                                                                                                                                                                                              52
   89
                         52
                                                                                                                                                                                                                                                                                                                                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-11-000-463-250

US-11-069-834-54

US-11-087-099-594

US-11-113-424-53

US-11-087-099-11966

US-10-821-234-1303

US-10-821-234-1262

US-11-000-463-454

US-10-821-234-1200

US-11-052-544-281

US-11-058-686-10232
                                                                                                                                                                                                                                                                                                                                                                                                      Score 11; DB 6; Le
; Pred. No. 0.0056;
0; Mismatches 0;
                                                   0
                                                              Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALIGNMENTS
                                                Mismatches
                                                             DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1452;
                                                                           Length 3803;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DRUG RESPONSE, METHODS
                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                  indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
```

0

Gaps

0

ç

°,

Gaps

```
₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                    US-10-995-561-779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-995-561-774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-995-561-774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; LENGTH: 3960
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-995-561-771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-995-561-771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS OF
TITLE OF INVENTION: DETECTION AND USES THEREOF
FILE REFERENCE: CL001559
                                                         GENERAL INFORMATION:
APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS OF
TITLE OF INVENTION: DETECTION AND USES THEREOF
FILE REFERENCE: CL001559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 771
                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 771, A
                                                                                                                                                                                   Sequence 779, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG REX
TITLE OF INVENTION: DETECTION AND USES THEREOF
FILE REFERENCE: CL001559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENERAL INFORMATION:
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FABESEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 5406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ication No.
                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                        42 VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                774,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                      11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VQKKTFTKWVN 89
                                                                                                                                                                                                                                                                                                                   VQKKTFTKWVN 89
                                                                                                                                                                                                         Application US/10995561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/10995561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/10995561
                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US20050272054A1
                                                                                                                                                                                        US20050272054A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US20050272054A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.0%; Score 11; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                               5.0%; Score 11;
100.0%; Pred. No.
tive 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                     DB 6; Length 5406; 0.019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 6; Length 3960
0.014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND DRUG RESPONSE, METHODS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
APPLICANT: WANG, KA-WANG KEVIN
APPLICANT: LIU, MING CHEN
APPLICANT: LIU, MING CHEN
APPLICANT: LIU, MONIKA
TITLE OF INVENTION: PROTEOLYTIC MARKERS AS DIAGNOSTIC BIG
TITLE OF INVENTION: INJURY AND MUSCLE REHABILITATION/EXE
FILE REFERENCE: 5853-549-1
CURRENT APPLICATION NUMBER: US/11/106,932
CURRENT FILING DATE: 2005-04-15
NUMBER OF SEQ ID NOS: 147
SOFTWARE: Patentin version 3.2
SEQ ID NO 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT ; ORGANISM: Homo sapiens US-10-995-561-775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                           US-11-106-932-113
                                                                                                                                                                                                                                                                                                                                                                                                             US-11-106-932-113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-10-995-561-775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Homo sapiens US-10-995-561-779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 775
                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                              Sequence 113, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 779
                                                 Matches
                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 775, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: CL001559
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: CARGILL,
                                                                                                                            ORGANISM: Homo sapiens
                                                                                                                                              TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                           LENGTH: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 5415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                 Local Similarity hes 9; Conserv
184 LPAEQGSPR 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79 VOKKTETKWVN 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79 VOKKTETKWVN 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.0%;
milarity 100.0%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                               Application US/11106932 o. US20050260697A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/10995561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US20050272054A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Michele et al.
GENETIC POLYMOPHISMS ASSOCIATED WITH
CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS OF
DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.0%;
                                                              100.0%;
                                                                              4.1%;
                                               Score 9; DB;
; Pred. No. 0.
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 11; DB 6;
Pred. No. 0.019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                        ; DB 7;
No. 0.0086;
0;
                                                                                                                                                                                                                                                                     REHABILITATION/EXERCISE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.019;
                                                                            Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 5464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 5415;
                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                    ORGAN
```

밁

0

```
US-11-106-932-33
; Sequence 33, Application US/11106932
; Publication No. US20050260697A1
; GENERAL INFORMATION:
; APPLICANT: WANG, KA-WANG KEVIN
; APPLICANT: HAYES, RONALD
; APPLICANT: LIU, MING CHEN
; APPLICANT: LIU, MONIKA
; APPLICANT: OLL, MONIKA
                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 821A

CURRENT APPLICATION NUMBER: US/10/821,234

CURRENT FILING DATE: 2004-04-07

PRIOR APPLICATION NUMBER: US 60/462,047

PRIOR FILING DATE: 2003-04-07

NUMBER OF SEQ ID NOS: 1704

SOPTWARE: pt_SEQ_genes Version 1.0

SEQ ID NO 951

LENGTH: 919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                              맑
                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-821-234-951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Homo sapiens US-11-106-932-33
                                                                                                 US-11-087-099-7653
                                                                                                                     RESULT 10
                                                                                                                                                                                                                                                                                                                                        US-10-821-234-951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 100.0%;
Matches 9; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 951, Application US/10821234 Publication No. US20050255114A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.2
SEQ ID NO 33
LENGTH: 30
TYPE: PRT
                                                                                                                                                                                                                                                           Best Loc
Matches
Sequence 7653, Application US/11087099
Publication No. US20060041961A1
GENERAL INFORMATION:
APPLICANT: Abad, Mark S. et al.
TITLE OF INVENTION: Genes and Uses for Plant Improvement
                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: PROTECLYTIC MARKERS AS DIAGNOSTIC BIOMARKERS FOR CANCER, TITLE OF INVENTION: INJURY AND MUSCLE REHABILITATION/EXERCISE OVERTRAINING FILE REFERENCE: 5853-549-1
CURRENT APPLICATION NUMBER: US/11/106,932
CURRENT FILING DATE: 2005-04-15
NUMBER OF SEQ ID NOS: 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Andarmani, Susan
APPLICANT: Tang, Y. Tom
TITLE OF INVENTION: Methods for Diagnosis and Treatment of Preeclampsia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Labat, APPLICANT: Stach
                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
                                                                                                                                                                                                                                                         Local Similarity
nes 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184 LPAEQGSPR 192
                                                                                                                                                                                                                  83
                                                                                                                                                                                96 SGERLPKP 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LPAEQGSPR 9
                                                                                                                                                                                                                  SGERLPKP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stache-Crain, Birgit
                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ivan
                                                                                                                                                                                                                                                                         3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.1%; Score 9; DB 7;
100.0%; Pred. No. 0.016;
1ve 0; Mismatches
                                                                                                                                                                                                                                                         Score 8; DB; Pred. No. 4.:
                                                                                                                                                                                                                                                                           DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                             Length 919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                           <u>,</u>
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                           0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Neurospora crassa US-11-087-099-4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-11-087-099-4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Streptomyces coelicolor A3(2)
US-11-087-099-7653
                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
US-11-072-512-3726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4181, Application US/11087099
Publication No. US20060041961A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NOS: 12464
SEQ ID NO 7653
LENGTH: 1089
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 3.6%;
Best Local Similarity 100.0%;
Matches 8; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 12464
SEQ ID NO 4181
LENGTH: 1609
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3726, Application US/11072512 Publication No. US20060029945A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Genes and Uses for Plant Improvement FILE REFERENCE: 38-21 (53450) B EP CURRENT APPLICATION NUMBER: US/11/087,099
CURRENT FILING DATE: 2005-03-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: 38-21(53450)B EP
CURRENT APPLICATION NUMBER: US/11/087,099
CURRENT FILING DATE: 2005-03-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Abad,
                                                                                              APPLICANT:
                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
             APPLICANT: MASUHO, YASUHIKO
TITLE OF INVENTION: NOVEL full length cDNA
FILE REFERENCE: 084335-0191
CURRENT APPLICATION NUMBER: US/11/072,512
CURRENT FILING DATE: 2005-03-07
                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                           APPLICANT: ISOGAI
                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                               APPLICANT:
PRIOR APPLICATION NUMBER: US 60/350,978
                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                               PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match 3.6%; Score 8; DB Local Similarity 100.0%; Pred. No. 5; Local Similarity 00.0%; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1191 QEEEERKR 1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         761 EEEERKRR 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       145 EEEERKRR 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144 QEEEERKR 151
                                                                                                                                                                                                                                                                                                          SUGIYAMA, TOMOYA
OTSUKI, TETSUJI
WAKAMATSU, AI
                                                                                             SEKI, NAOHIKO
YOSHIKAWA, TSUTOMU
OTSUKA, MOTOYUKI
NAGAHARI, KENJI
                                                                                                                                                             OTSÜKA, KAORU
NAGAI, KEIICHI
IRIE, RYOTARO
TAMECHIKA, ICHIRO
                                                                                                                                                                                                                       ISONO, YURI
                                                                                                                                                                                                                                                              YAMAMOTO, JUN-ICHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mark S. et al.
                                                                                                                                                                                                                                                YUUKO
                                                                                                                                                                                                                                                                             SHIZUKO
                                                                                                                                                                                                                                                                                                                                                            TAKAO
                                                                                                                                                                                                                                                                                                                                               TOMOYASU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 8;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1089;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1609;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                     RESULT 14
US-10-995-561-700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
US-10-995-561-702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Homo sapiens
US-11-072-512-3726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-995-561-702
                                                                                                        CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 700
LENGTH: 312
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                Sequence 700, Application US/10995561 Publication No. US20050272054A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 702, Application US/10995561 Publication No. US20050272054A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Ver. 2.1 SEQ ID NO 3726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                       Query Match
                                                                           ORGANISM: Homo sapiens -10-995-561-700
                                                                                                                                                                                                                                       APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS OF
TITLE OF INVENTION: DETECTION AND USES THEREOF
FILE REFERENCE: CL001559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS
TITLE OF INVENTION: DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2002-01-25
PRIOR APPLICATION NUMBER: JP 2001-379298
PRIOR FILING DATE: 2001-11-05
NUMBER OF SEQ ID NOS: 4096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 306
TYPE: PRT
 y Match 3.2%; Score 7; Local Similarity 100.0%; Pred. No. hes 7; Conservative 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE: CL001559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110 LKEQRVH 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  152 RPPSPDP 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RPPSPDP 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                  DB 6;
o. 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 7;
                                     Length 312;
   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
   Indels
   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .,
'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

RESULT 17 US-11-072-512-3479

GENERAL INFORMATION:

ISOGAI,

TAKAO

APPLICANT: APPLICANT: APPLICANT:

SUGIYAMA, TOMOYASU OTSUKI, TETSUJI WAKAMATSU, AI SATO, HIROYUKI Sequence 3479, Application US/11072512 Publication No. US20060029945A1

```
RESULT 16
US-10-995-561-699
j Sequence 699, Application US/10995561
; Publication No. US20050272054A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-995-561-701; Sequence 701; Applica; Publication No. US200; GENERAL INFORMATION:
밁
                               Ś
                                                                                                                                        ; TYPE: PRT ; ORGANISM: Homo sapiens US-10-995-561-699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: PRT ; ORGANISM: Homo sapiens US-10-995-561-701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭉
                                                                                                                                                                                                          SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 699
                                                                     Matches
                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 701
                                                                                                                                                                                                                                         TITLE OF INVENTION: GENETIC POLYMORPHISMS
TITLE OF INVENTION: CARDIOVASCULAR DISORN
TITLE OF INVENTION: DETECTION AND USES TO
FILE REFERENCE: CL001559
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS
TITLE OF INVENTION: CARDIOVASCULAR DISOR
TITLE OF INVENTION: DETECTION AND USES TO
FILE REFERENCE: CL001559
CURRENT PEPLICATION NUMBER: US/10/995.561
CURRENT FILING DATE: 2004-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                           LENGTH: 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 361
                                                          3.2%;
Local Similarity 100.0%;
nes 7; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%;
Local Similarity 100.0%;
les 7; Conservation
                                 110 LKEQRVH 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 LKEQRVH 116
199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 199 LKEQRVH 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110 LKEQRVH 116
                                                                                                                                                                                                                                                                                                                                                                          CARGILL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LKEQRVH 205
LKEQRVH 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/10995561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US20050272054A1
                                                                                                                                                                                                                                                                                                                                     Michele et al.
GENETIC POLYMORPHISMS ASSOCIATED WITH
CARDIOVASCULAR DISORDERS AND DRUG RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Michele et al.
GENETIC POLYMORPHISMS ASSOCIATED WITH
CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                     DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 7; DB 6; Pred. No. 19; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                    Score 7;
Pred. No.
                                                                     Mismatches
                                                                                      DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 6;
5. 19;
                                                                                                     Length 364;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 361;
                                                                                                                                                                                                                                                                                                                                     DRUG RESPONSE, METHODS OF
                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels .
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

ISONO, YURI YAMAMOTO,

YUUKO SHIZUKO

JUN-ICHI

```
APPLICANT: HIO, YUNA
APPLICANT: OTSUKA, KAORU
APPLICANT: NAGAI, KEJICHI
APPLICANT: IRIE, RYOTARO
APPLICANT: IRIE, RYOTARO
APPLICANT: TAMECHIKA, ICHIRO
APPLICANT: YOSHIKAMA, TSUTOMU
APPLICANT: YOSHIKAMA, TSUTOMU
APPLICANT: NAGAHARI, KENJI
APPLICANT: NAGAHARI, KENJI
APPLICANT: NAGAHARI, KENJI
APPLICANT: NAGAHARI, KENJI
CURRENT APPLICATION NUMBER: US/11/072,512
CURRENT APPLICATION NUMBER: US/11/072,512
CURRENT APPLICATION NUMBER: US/0350,978
PRIOR APPLICATION NUMBER: US/0350,978
PRIOR APPLICATION NUMBER: JP 2001-379298
PRIOR FILING DATE: 2001-11-05
NUMBER OF SEQ ID NOS: 4096
SOFTWARE: PATENTIN OF SEQ ID NOS: 4096
SOFTWARE: PATENTIN NUMBER: US/078184: 549
TYDE: PRT
ORGANISM: Homo Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                               ; NUMBER OF SEQ ID NOS: 12464
; SEQ ID NO 2273
; LENGTH: 595
; TYPE: PRT
; ORGANISM: Pseudomonas aeruginosa
US-11-087-099-2273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 18
US-11-087-099-2273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-11-072-512-3479
                                                                                                                                                     US-11-072-512-2425
                                                                                                                                                                           RESULT 19
Sequence 2425, Application US/11072512
Publication No. US20060029945A1
GENERAL INFORMATION:
APPLICANT: ISOGAI, TAKAO
APPLICANT: SUGGIYAMA, TOMOYASU
APPLICANT: OTSUKI, TETSUJI
APPLICANT: WAKAMATSU, AI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2273, Application US/11087099 Publication No. US20060041961A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                          Query Match 3.2%; Score 7; DB 7; Best Local Similarity 100.0%; Pred. No. 30; Matches 7; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Abad, Mark S. et al.
TITLE OF INVENTION: Genes and Uses for Plant Improvement
FILE REFERENCE: 38-21(53450)B EP
CURRENT APPLICATION NUMBER: US/11/087,099
CURRENT FILING DATE: 2005-03-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112 EQRVHLE 118
                                                                                                                                                                                                                                          252 EVLSGER 258
                                                                                                                                                                                                                                                                       80 EVLSGER 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 EQRVHLE 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.2%; Score 7; DB 7;
100.0%; Pred. No. 28;
ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 549;
                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                       Length 595
                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                               0
```

```
APPLICANT: MASUHO, YASUHIKO
TITLE OF INVENTION: NOVEL full length cDNA
FILE REFERENCE: 084335-0191
CURRENT APPLICATION NUMBER: US/11/072,512
CURRENT FILING DATE: 2005-03-07
PRIOR APPLICATION NUMBER: US 60/350,978
PRIOR FILING DATE: 2002-01-25
PRIOR PELLING DATE: 2002-01-25
PRIOR PELLING DATE: 2002-01-25
PRIOR FILING DATE: 2001-11-05
NUMBER OF SEQ ID NOS: 4096
SOFTWARE: PATENTIN Ver. 2.1
SEQ ID NO 2425
LENGTH: 673
                                                                                                                                                                                                                                                                                  APPLICANT: Microbial Technics Limited
APPLICANT: Gilbert, Christophe FG
APPLICANT: Gilbert, Christophe FG
APPLICANT: Hansbro, Philip M
TITLE OF INVENTION: Proteins
FILE REFERENCE: PMC/P21129WO
CURRENT APPLICATION NUMBER: US/10/873,528
CURRENT FILING DATE: 2004-06-23
PRIOR APPLICATION NUMBER: US/09/769,787
PRIOR PPLICATION NUMBER: US/09/769,787
PRIOR APPLICATION NUMBER: GB 9816337.1
PRIOR APPLICATION NUMBER: US 60/125164
PRIOR APPLICATION NUMBER: US 60/125164
PRIOR APPLICATION DATE: 1999-03-19
PRIOR FILING DATE: 1990-03-19
PRIOR FILING DATE: 1909-03-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-873-528-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Homo sapiens 
US-11-072-512-2425
밁
                                  S
                                                                                                                                                      ; ORGANISM: Streptococcus pneumoniae US-10-873-528-11
                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 388
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 11
LENGTH: 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 11, Application US/10873528 Publication No. US20050276814A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.2%; Score 7; DB Best Local Similarity 100.0%; Pred. No. 34 Matches 7; Conservative 0; Mismatches
                                                                             Matches
                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                             TYPE: PRT
                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          516 LIKLLEV 522
402 TOLYTOL 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75 LIKLLEV 81
                                    63 IDLYIDL 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTSÜKA, KAORU
NAGAI, KEIICHI
IRIB, RYOTARO
TAMECHIKA, ICHIRO
SEKI, NAOHIKO
YOSHIKAWA, TSUTOMU
OTSUKA, MOTOYUKI
NAGAHARI, KENUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SATO, HIROYUKI
ISHII, SHIZUKO
YAMAMOTO, JUN-ICHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISONO,
                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YURI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YUUKO
                                                                         3.2%; Score 7; DB (
100.0%; Pred. No. 53)
tive 0; Mismatches
                                                                                                 DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 673;
                                                                                                                 Length 1099;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                               Gaps
```

0

0,

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 22
US-10-995-561-777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 4374
; TYPE: PRT
; ORGANISM: Homo sapiens
US-11-128-572-2
                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Homo sapiens US-10-995-561-777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 21
US-11-128-572-2
                                                                                                                                                                                                                US-11-045-024-2635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity lou.
Whiches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PILE REFERENCE: CL001559
CURRENT APPLICATION NUMBER: US/10/995,561
CURRENT FILING DATE: 2004-11-24
NUMBER OF SEQ ID NOS: 85702
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/11128572
Publication No. US20050266513A1
GENERAL INFORMATION:
APPLICANT: Boehringer Ingelheim International GmbH
TITLE OF INVENTION: Method for identifying compound
TITLE OF INVENTION: activity of Myc
FILE REFERENCE: Case 12-0231-PCT
                                                                                                                                                                            Sequence 2635, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPHISMS ASSOCIATED WITH
TITLE OF INVENTION: CARDIOVASCULAR DISORDERS AND DRUG RESPONSE, METHODS
TITLE OF INVENTION: DETECTION AND USES THEREOF
                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 777, Appropriate Publication No.
                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/11/128,572
CURRENT FILING DATE: 2005-05-13
                                                                         APPLICANT:
                                                                                                                            APPLICANT:
                                                                                                                                         APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 5335
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1557 LIKLLEV 1563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75 LIKLLEV 81
                                                                                                                                                                                                                                                                                        23 LLEVISG 29
                                                                                                                                                                                                                                                                                                                         78 LLEVLSG 84
                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conserv
                              Chesnut, Robert
Baker, Denise Marie
Celis, Esteban
                                                                                    Sidney, John
Southwood, Scott
Livingston, Bria
Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/10995561 p. US20050272054A1
                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%; Score 7; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                      Brian
                                                                                                                                                                                                                                                                                                                                                           3.2%; Score 7; DB 6; Les
100.0%; Pred. No. 2.3e+02;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.9e+02;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compounds that have the potential to inhi
                                                                                                                                                                                                                                                                                                                                                                                               Length 5335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 4374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CÜRRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1993-03-05
PRIOR FILING DATE: 1993-03-05
PRIOR REPLICATION NUMBER: US 08/027,146
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR APPLICATION NUMBER: US 08/103,396
PRIOR APPLICATION NUMBER: US 08/103,396
PRIOR FILING DATE: 1993-08-06
PRIOR FILING DATE: 1993-08-06
PRIOR PILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/159,184
PRIOR APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 24
US-11-045-024-5011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Thes 6; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-11-045-024-2635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 5011, Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 2060.0040007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US OF PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sette, Alessandro APPLICANT: Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/205,713
PRIOR FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 09/412,863 PRIOR FILING DATE: 1999-10-05 PRIOR APPLICATION NUMBER: US 08/027,146 PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: US 08/159,184
PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR FILING DATE: 1993-06-04
PRIOR APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH:
  APPLICATION NUMBER: US 08/205,713 FILING DATE: 1994-03-04
                                            FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5011, Application US/11045024
on No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chesnut,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.7%; Score 6; I
00.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 7;
b. le+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
```

0,

```
ঠ
RESULT 26
US-11-045-024-3576
                                                                      유
                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-11-045-024-2649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-11-045-024-5011
                                                                                                                                                                                                                  US-11-045-024-2649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR FILING DATE: 1994-12-01
NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 5011
LENGTH: 8
                                                                                                                                                                                                                                                                                       SOFTWARE: FastSEQ
SEQ ID NO 2649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Sette, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2649, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                             Matches
                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR FILING DATE: 1993-06-04
PRIOR APPLICATION NUMBER: US 08/103,396
PRIOR FILING DATE: 1993-08-06
PRIOR APPLICATION NUMBER: US 08/159,184
PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.0040007
                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/205,713
PRIOR FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                    LENGTH: 9
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 08/347,610 PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                   ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134 TLELLE 139
                                                                                                          134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 TLELLE 6
                                                                                                                                             ٠<del>.</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baker, Denise Marie
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chesnut,
                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                            2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 6; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 7;
                                                                                                                                                                               DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1e+05;
                                                                                                                                                                1e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 8;
                                                                                                                                                                               Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                           0,
```

```
; ORGANISM: HUMAN US-11-045-024-3576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILLING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILLING DATE: 1993-03-05
PRIOR FILLING DATE: 1993-03-05
PRIOR PPLICATION NUMBER: US 08/073,205
PRIOR PPLICATION NUMBER: US 08/073,205
PRIOR PPLICATION NUMBER: US 08/103,396
PRIOR PILLING DATE: 1993-08-06
PRIOR PILLING DATE: 1993-08-06
PRIOR PPLICATION NUMBER: US 08/159,184
PRIOR APPLICATION NUMBER: US 08/159,339
PRIOR FILLING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-11-045-024-5023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 3576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3576, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL
                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 5023, Application US/11045024 Publication No. US20050271676A1
APPLICANT: Baker, Denise Marie
APPLICANT: Celis, Esteban
APPLICANT: Kubo, Ralph
APPLICANT: Kubo, Ralph
APPLICANT: Grey, Howard M.
APPLICANT: Epimmune Inc.
APPLICANT: Epimmune Inc.
APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Sette, Alessandro
APPLICANT: Sidney, John
APPLICANT: Southwood, Scott
APPLICANT: Livingston, Briat
APPLICANT: Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 14528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 08/205,713
PRIOR FILING DATE: 1994-03-04
PRIOR APPLICATION NUMBER: US 08/347,610
PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
les 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Celis, Esteban
                                                                                                                                                                                                                                                                                                  Chesnut, Robert
                                                                                                                                                                                                                                                                                                                              Livingston, Brian
                                                                                                                                                                                                                                                                                                                                                  Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                              Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Score 6; DB 7
%; Pred. No. le+
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

APPLICATION NUMBER: US 08/027,146 FILING DATE: 1993-03-05

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-11-045-024-6897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-11-045-024-5023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 6; Conserv
                                                           SEQ ID NO 6897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 5023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Publication No. US20
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
                                                                                                                    PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 9
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
DRGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TILE OF INVENTION: Inducing Cellular Responses to Human TILE OF INVENTION: Virus-1 Using Peptide and Nucleic Ac
                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/027,146 FILING DATE: 1993-03-05
                                                                                                                                        APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/159,184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/205,713 FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 08/159,339 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/159,184 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/103,396
                                                                                                                                                               FILING DATE: 1994-03-04
                                                                                                                                                                                                                      APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                APPLICATION NUMBER: US 08/205,713
                                                                                                                                                                                                                                                                                FILING DATE: 1993-06-04
APPLICATION NUMBER: US 08/103,396
FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 TLELLE 139
                                                                                                                                                                                                       LING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kubo, Raipn
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7, Application US/11045024
40. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Epimmune Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2060.0040007
                                                                            NOS: 14528
Q for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alessandro
                                                                                                                                                                                                                                         1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.7%; Score 6; 1
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 7;
o. le+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Nucleic Acid Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

```
RESULT 30
US-11-045-024-12496
                                                                                                                                                                                               밁
                                                                                                                                                                                                                             გ
                                                                                                                                                                                                                                                                                                                               ; TYPE: PRT
; ORGANISM: HUMAN
US-11-045-024-10720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-11-045-024-10720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-11-045-024-6897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                       Sequence 12496, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ
SOFTWARE: Fast:
SEQ ID NO 10720
                                                                                                                                                                                                                                                                                               Query Match
                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 10720, Application US/11045024 Publication No. US20050271676A1
                                       APPLICANT:
                                                       APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 08/347,610 PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: US 08/073,205 PRIOR FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                   ENGTH: 9
                                                                                                                                                                                                                                                             Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/159,184 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/205,713 FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1993-08-06
                                                                                                                                                                                                                         134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NOS: 14528
FastSEQ for Windows Version 4.0
Sidney, John
Southwood, Scott
Livingston, Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Baker, Denise Marie
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chesnut,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kubo, Ralph
                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                 IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Robert
                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                             2.7%; Score 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     %; Score 6; DB 7
%; Pred. No. 1e+
0; Mismatches
                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                               No.
                                                                                                                                                                                                                                                                                             DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 7;
                                                                                                                                                                                                                                               le+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1e+05;
                                                                                                                                                                                                                                                                                            Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,,</u>
                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                             0
```

Grey, Howard M.

Chesnut, Robert Baker, Denise Marie

Esteban

```
ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-12496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-11-045-024-14001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: FASTSEQ
SEQ ID NO 12496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 14001, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILING DATE: 1993-03-05
PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                                                 FILE REFERENCE: 2060,0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILING DATE: 1993-03-05
PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.0040007
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR FILING DATE: 1993-06-04
PRIOR APPLICATION NUMBER: US 08/103,396
PRIOR FILING DATE: 1993-08-06
                                                                                                                                                                                                                                    TITLE OF INVENTION: Inducing Cellular Responses to Human Imm
                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1993-06-04
APPLICATION NUMBER: US 08/103,396
FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/205,713 FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/159,339 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/159,184 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 TLELLE 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٠.
و
                                                                                                                                                                                                                                                                                                 Kubo, Raipn
Grey, Howard M.
                                                                                                                                                                                                                                                                                     Epimmune Inc.
                                                                                                                                                                                                                                                                                                                                                                    Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                 Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1994-12-01
                                                                                                                                                                                                                                                                                                                                                Esteban
                                                                                                                                                                                                                                                                                                                                                                                               Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                    Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 6; DB 7;
; Pred. No. 1e+0!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

S

134 TLELLE 139

```
APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Imm
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid
FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT EILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILING DATE: 1993-03-05
PRIOR FILING DATE: 1993-03-05
PRIOR FILING DATE: 1993-03-05
PRIOR PILING DATE: 1993-03-05
PRIOR PILING DATE: 1993-03-05
PRIOR APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-11-045-024-14001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-11-045-024-3582
                                                                            ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-3582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOPTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 14001
                  Best
                                                                                                                                     NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 3582
LENGTH: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3582, Application US/11045024 Publication No. US20050271676A1
  Matches
                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/205,713
PRIOR FILING DATE: 1994-03-04
PRIOR APPLICATION NUMBER: US 08/347,610
PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/159,339
PRIOR FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 14528
                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 1993-06-04.
PRIOR APPLICATION NUMBER: US 08/103,396
PRIOR FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US C
                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity hes 6; Conserv
                  Local
                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134 TLELLE 139
Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Baker, Denise I
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.7%; Sur-
100.0%; Pre
2.7%; Score 6; DB '
100.0%; Pred. No. 6.9
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Brian
                                                                                                                                                                                                                                                                                                                                                           08/159,184
                                                                                                                                                                                                                                                                                                                    08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 7; I
o. 1e+05;
                    DB 7;
b. 6.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                       Length 10;
    0
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
  ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
    0
```

밁

```
В
.
                                                                                                                                                                                                                                                                                    US-11-045-024-10716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-11-045-024-5043
                                                                                                                                                                                                                                            Sequence 10716, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5043, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -11-045-024-5043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Epimmune Inc.
APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.004
                                                                                                                                                                                     APPLICANT: Sette, Alessandro
APPLICANT: Sidney,John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/11/045,024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 09/412,863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 10
TYPE: PRT
ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
les 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1994-03-04
APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/027,146 FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/073,205 FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/205,713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/159,339 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/159,184 FILING DATE: 1993-11-29
                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                          134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILING DATE: 1993-08-06
    INVENTION:
                                                                           Livingston, Brian
Chesnut, Robert
Baker, Denise Marie
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                    TLELLE 8
                                        Grey, Howard M.
                                                                                                                                                          Southwood, Scott
                                                                                                                                                                                   Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.7%; Score 6; 1 llarity 100.0%; Pred. No. Conservative 0; Mismatcl
                                                               Ralph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Esteban
Inducing Cellular Responses to Human Immunodeficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-10716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-11-045-024-12492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 12492, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 10716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: 2050.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-02/41062
                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                             PRIOR APPLICATION NUMBER: US 08/159,339
PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/205,713
                                                                                                                             PRIOR FILING DATE: 1993-08-06
PRIOR APPLICATION NUMBER: US 08/159,184
PRIOR FILING DATE: 1993-11-29
                                                                                                                                                                                                               PRIOR FILING DATE: 1993-03-05
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions FILE REFERENCE: 2060.0040007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR FILING DATE: 1994-03-04
PRIOR APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                                                                                                                                            PRIOR APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/103,396 PRIOR FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 08/027,146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENGTH:
                                           FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/205,713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/159,184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 TLELLE 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 6; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FastSEQ for Windows Version 4.0
CATION NUMBER: US 08/347,610 NG DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sour...
Livingston, b...
Thit, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Grey, Howard M.
Epimmune Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kubo, Ralph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ION: Virus-1 Using Peptide 2050.0040007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.7%; Score 6; DB 100.0%; Pred. No. 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and Nucleic Acid Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; NUMBER OF SEQ ID NOS: 14528
; SOFTWARE: FASTSEQ for Windows Version 4.0
; SEQ ID NO 12492
; LENGTH: 10
; TYPE: PRT
; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
US-11-045-024-12492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
; Sequence 13345, Application US/11045024
                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REPRENCE: 2060.0040007

CURRENT APPLICATION NUMBER: US/11/045,024

CURRENT FILING DATE: 2005-01-28

PRIOR APPLICATION NUMBER: US 09/412,863

PRIOR APPLICATION NUMBER: US 08/027,146

PRIOR FILING DATE: 1993-03-05

PRIOR PRILING DATE: 1993-03-05

PRIOR PRILING DATE: 1993-08-06

PRIOR FILING DATE: 1993-08-06

PRIOR FILING DATE: 1993-08-06

PRIOR FILING DATE: 1993-08-06

PRIOR PRICING DATE: 1993-11-29

PRIOR APPLICATION NUMBER: US 08/159,184

PRIOR APPLICATION NUMBER: US 08/159,184

PRIOR APPLICATION NUMBER: US 08/159,399

PRIOR APPLICATION NUMBER: US 08/159,339

PRIOR APPLICATION NUMBER: US 08/159,339

PRIOR APPLICATION NUMBER: US 08/159,339

PRIOR APPLICATION NUMBER: US 08/205,713

PRIOR PRIOR FILING DATE: 1993-11-29

PRIOR APPLICATION NUMBER: US 08/205,713

PRIOR PRIOR PRICAMENT NUMBER: US 08/205,713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-11-045-024-12853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 36
                   RESULT 37
US-11-045-024-13345
                                                                                                      유
                                                                                                                                           8
                                                                                                                                                                                                                                                                     ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-12853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 12853, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 12853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICÀNT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/205,713
FILING DATE: 1994-03-04
APPLICATION NUMBER: US 08/347,610
FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 TLELLE 139
                                                                                                                                    134 TLELLE 139
                                                                                                      3 TLELLE 8
                                                                                                                                                                                   6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baker, Denise Marie
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Southwood, Scott
Livingston, Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.7%; Score 6; DB ilarity 100.0%; Pred. No. 6. Conservative 0; Mismatches
                                                                                                                                                                                      Conservative
                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                   Score 6; DB 7; Pred. No. 6.9
0; Mismatches
                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 7;
5. 6.9;
                                                                                                                                                                                                           DB 7;
o. 6.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                      0;
                                                                                                                                                                                                                            Length 10;
                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٥,
                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                      0;
```

```
GENERAL INFORMATION:
APPLICANT: Sette, Alessandro
APPLICANT: Sidney, John
APPLICANT: Southwood, Scott
APPLICANT: Livingston, Brian
APPLICANT: Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: PRT ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-13345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 38
US-11-045-024-13348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILING DATE: 1993-03-05
PRIOR APPLICATION NUMBER: US 08/073,205
PRIOR APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 14528
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 13345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.7%;
Best Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 13348, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Epimmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions
FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT: Epinmune Inc.
TITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency TITLE OF INVENTION: Virus-1 Using Peptide and Nucleic Acid Compositions FILE REFERENCE: 2060.0040007
CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
PRIOR APPLICATION NUMBER: US 09/412,863
PRIOR APPLICATION NUMBER: US 08/027,146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US 08/347,610 PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR FILING DATE: 1993-11-29
PRIOR APPLICATION NUMBER: US 08/205,713
PRIOR FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Sette, Alessandro APPLICANT: Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/159,184
PRIOR FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                 Chesnut, Robert
Baker, Denise Marie
Celis, Esteban
Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Livingston, Bri
Chesnut, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Baker, Denise Marie
Celis, Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.7%; Score 6; I
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                 Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

APPLICATION NUMBER: US 08/073,205 FILING DATE: 1993-06-04

FILING DATE: 1993-03-05

ころは大人のないないないます!

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-13348
LENGTH: 15
TYPE: PRT
ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 13515, Application US/11045024 Publication No. US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local (
                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 13515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 13348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR FILING DATE: 1994-03-04
PRIOR APPLICATION NUMBER: US 08/347,610
PRIOR FILING DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 14528
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US 09/412,863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IITLE OF INVENTION: Inducing Cellular Responses to Human Immunodeficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH:
                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/027,146
                                                                                                                                                     FILING DATE: 1994-12-01
                                                                                                                                                                   FILING DATE: 1994-03-04
APPLICATION NUMBER: US 08/347,610
                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 08/159,339 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/159,184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1993-08-06
                                                                                                                                                                                                             APPLICATION NUMBER: US 08/205,713
                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/159,339 FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/159,184
                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/205,713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/11/045,024 FILING DATE: 2005-01-28
                                                                                                                                                                                                                                                                     LING DATE: 1993-11-29
                                                                                                                                                                                                                                                                                                            LING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8 TLELLE 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 6; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sidney, John
Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Epimmune Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Livingston,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.7%; Score 6; DB ilarity 100.0%; Pred. No. 10 Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2060.0040007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Esteban
                                                                                                                                                                                                                                                                                                                                                 1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                  1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;, Robert
Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                              RESULT 41
US-11-096-725-28
                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: HUMAN IMMUNODEFICIENCY VIRUS US-11-045-024-13516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 40
US-11-045-024-13516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 100.
Thes 6; Conservative
                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 13516
                                                                                                             Sequence 28, Application US/11096725 Publication No. US20060013820A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/11/045,024
CURRENT FILING DATE: 2005-01-28
                                                            APPLICANT: BONNET, Dominique APPLICANT: BROWN, Carlton B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Inducing Cellular Responses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: US 08/159,339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIOR FILING DATE: 1993-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 08/027,146
PRIOR FILING DATE: 1993-03-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sette, Alessandro
                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 08/159,184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR FILING DATE: 1993-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US 08/103,396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 08/073,205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 09/412,863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1994-03-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 TLELLE 139
                                                                                                                                                                                                                                                    134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
                                                                                                                                                                                                                     1 TLELLE 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATION NUMBER: US 08/347,610 
NG DATE: 1994-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATION NUMBER: US 08/205,713
GEORGES, Bertrand SIZER, Philip {\tt J} Vectors and Constructs VENTION: Antigen Delivery Vectors and Constructs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kubo, Ralph
Grey, Howard M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Epimmune Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baker, Denise Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Southwood, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sidney, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Livingston, Brian
                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US20050271676A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/11045024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2060.0040007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1993-11-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Esteban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.7%; Score 6; DB 7;
100.0%; Pred. No. 10;
                                                                                                                                                                                                                                                                                                       Score 6; 1; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                       DB 7;
                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                                                                                                                                                                                                                                                        Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 15;
                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

INVENTION:

```
; FILE REFERENCE: KLB-001
; CURRENT APPLICATION NUMBER: US/11/096,725
; CURRENT FILING DATE: 2005-04-01
; PRIOR APPLICATION NUMBER: GB0408164.2
PRIOR FILING DATE: 2004-04-13
; NUMBER OF SEQ ID NOS: 40
; SOFTMARE: PatentIn version 3.2
; SEQ ID NO 28
; SEQ ID NO 28
; LENGTH: 35
; TYPE: PRT
; ORGANISM: Human immunodeficiency virus type 1
US-11-096-725-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 78, Application US/11107096
Publication No. US20060003348A1
GENERAL INFORMATION:
APPLICANT: SIDHU, SACHDEV S.
APPLICANT: ZHANG, YINGHAN
TITLE OF INVENTION: OMI PDZ MODULATORS
FILE REFERENCE: P2100R1
CURRENT APPLICATION NUMBER: US/11/107,096
CURRENT FILING DATE: 2005-04-15
PRIOR APPLICATION NUMBER: US 60/563,157
PRIOR FILING DATE: 2004-04-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 42
US-11-107-096-78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                US-11-053-076-59
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-11-107-096-78
                                                       CURRENT APPLICATION NUMBER: US/11/053,076
CURRENT FILING DATE: 2005-02-07
PRIOR APPLICATION NUMBER: PCT/US03/28508
PRIOR FILING DATE: 2003-09-09
PRIOR APPLICATION NUMBER: 10/630,590
PRIOR FILING DATE: 2003-07-25
PRIOR APPLICATION NUMBER: 60/490,094
PRIOR APPLICATION NUMBER: 60/490,094
PRIOR FILING DATE: 2003-07-25
PRIOR FILING DATE: 2003-07-25
                                                                                                                                                                                                                                         Sequence 59, Application US/11053076
Publication No. US20050255460A1
GENERAL INFORMATION:
APPLICANT: Lu, Peter S.
APPLICANT: Schweizer, Johannes
APPLICANT: Schweizer, Johannes
APPLICANT: Belmares, Michael P.
APPLICANT: Belmares, Michael P.
TITLE OF INVENTION: METHODS OF DIAGNOSING CERVICAL CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SI
SEQ ID NO 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                          FILE REFERENCE: VITA-008CIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 100
TYPE: PRT
ORGANISM: Homo sapiens
                   APPLICATION NUMBER: 60/450,464 FILING DATE: 2003-02-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134 TLELLE 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137 LLEVRR 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80 LLEVRR 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 TLELLE 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.7%; Score 6; DB 7;
100.0%; Pred. No. 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.7%;
60/409,298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 6; I
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 7;
o. 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
CURRENT FILING DATE: 2004-02-03
PRIOR APPLICATION NUMBER: US 60/309,841
PRIOR PILING DATE: 2001-08-03
PRIOR APPLICATION NUMBER: US 60/360,061
PRIOR PILING DATE: 2002-02-25
PRIOR FILING DATE: 2002-08-02
PRIOR FILING DATE: 2002-08-02
PRIOR FILING DATE: 2002-08-02
NUMBER OF SEQ ID NOS: 841
SOFTWARE: Patentin version 3.1
SOFTWARE: PATENT OF SEQ ID NOS: 841
CENGTH: 113
TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 44
US-10-485-788A-724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-11-053-076-59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: 10/630,590
PRIOR FILING DATE: 2003-07-29
PRIOR PILING DATE: 2003-07-29
PRIOR PILING DATE: 2002-08-02
PRIOR PILING DATE: 2002-08-03
PRIOR APPLICATION NUMBER: 60/309,841
PRIOR FILING DATE: 2001-08-03
PRIOR PILING DATE: 2001-08-03
PRIOR APPLICATION NUMBER: 60/360,061
PRIOR PILING DATE: 2002-02-25
PRIOR APPLICATION NUMBER: 10/080,273
PRIOR APPLICATION NUMBER: 10/080,273
RESULT 45
US-11-053-076-94
                                                                               片
                                                                                                               á
                                                                                                                                                                                                                                 US-10-485-788A-724
                                                                                                                                                   Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 724, Applic Publication No. US20 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.7%; Score 6; I
Best Local Similarity 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: 20054-003320US
CURRENT APPLICATION NUMBER: US/10/485,788A
CURRENT FILING DATE: 2004-02-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Lu, Peter S. APPLICANT: Rabinowitz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Remaining Prior Application data removed - NUMBER OF SEQ ID NOS: 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2002-02-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Molecular Interactions in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   137 LLEVRR 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93 LLEVRR 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109
                                                                               22 KLLEVL 27
                                                                                                               77 KLLEVL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carrick, Deanna Marie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arbor Vita Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rabinowitz, Joshua D. Schweizer, Johannes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/10485788A
o. US20050282743A1
                                                                                                                                                     Conservative
                                                                                                                                                                         2.7%;
                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                       Score 6; DB (
; Pred. No. 67
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      See File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7;
                                                                                                                                                                                           Length 113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 109;
                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                           Gaps
                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
```

Sequence 94, Application US/11053076
Publication No. US20050255460A1
GENERAL INFORMATION:

APPLICANT: Lu, Peter S.
APPLICANT: Schweizer, Johannes

OF INVENTION: METHODS OF DIAGNOSING CERVICAL CANCER

Somoza Diaz-Sarmiento, Chamorro

Belmares,

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-11-055-822-146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Homo sapiens
US-11-053-076-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 146, Application US/11055822 Publication No. US20050260707A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 94
                                                                                                                                                                                                                                                                                                                APPLICANT: Haberhauer, Gregor
TITLE OF INVENTION: CORYNEBACTERIUM GLUTAMICUM GENES ENCODING
TITLE OF INVENTION: METABOLIC PATHWAY PROTEINS
                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 09/606,740 PRIOR FILING DATE: 2000-06-23
                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/11/055,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/11/053,076
CURRENT FILING DATE: 2005-02-07
                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Pompejus, Markus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 10/630,590 PRIOR FILING DATE: 2003-07-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: PCT/US03/28508
PRIOR FILING DATE: 2003-09-09
                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH: 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                 APPLICATION NUMBER: 60/141,031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/490,094 FILING DATE: 2003-07-25
                                                                                                APPLICATION NUMBER: 60/148,613 FILING DATE: 1999-08-12
                                                                                                                                        APPLICATION NUMBER: 60/142,101 FILING DATE: 1999-07-02
                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/450,464 FILING DATE: 2003-02-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2002-02-25
                                   APPLICATION NUMBER: DE 19930476.9
                                                              FILING DATE:
                                                                           APPLICATION NUMBER: 60/187,970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 10/080,273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/360,061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/309,841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: PCT/US02/24655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22 KLLEVL 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77 KLLEVL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE: 2002-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICATION NUMBER: 10/630,590 NG DATE: 2003-07-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IICATION NUMBER: 60/409,298
                                                                                                                                                                                                                                                                                                                                                                                 Zelder, Oskar
                                                                                                                                                                                                                                                                                                                                                                                                    Schroder,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                     BGI-121CPCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application data removed - See File Wrapper or PALM
NUMBER: DE 19931415.2
                                                                                                                                                                                1999-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001-08-03
                                                          2000-03-09
                                                                                                                                                                                                                                                                                                                                                                                                  Hartwig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
片
                                                                                                                                                                                                                                               US-11-087-099-7788
                                                                                                                                                                                                                                                              RESULT 48
                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: PRT
; ORGANISM: Haemophilus influenzae Rd
US-11-052-554A-88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 47
US-11-052-554A-88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
US-11-087-099-7788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Corynebacterium glutamicum US-11-055-822-146
                                                 NUMBER OF SEQ 1
SEQ ID NO 7788
LENGTH: 145
                                                                                                                                                                                          Sequence 7788, Application US/11087099 Publication No. US20060041961A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Remaining Prior Application data removed - See File Wrapper or NUMBER OF SEQ ID NOS: 1158
SEQ ID NO 146
                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 88, Application US/11052554A
Publication No. US20050288866A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Sachdeva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                        CURRENT APPLICATION NUMBER: US/11/087,099
CURRENT FILING DATE: 2005-03-22
                                                                                                                                  APPLICANT: Abad, Mark S. et al.
TITLE OF INVENTION: Genes and Uses for Plant Improvement
FILE REFERENCE: 38-215345018 EP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 60/589,227
PRIOR FILING DATE: 2004-07-20
PRIOR APPLICATION NUMBER: IN 173/DEL/2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: DE 19931418.7
PRIOR FILING DATE: 1999-07-08
PRIOR APPLICATION NUMBER: DE 19931419.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/11/052,554A
CURRENT FILING DATE: 2005-02-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: 30853/40359A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sachdeva, et al.
ITTLE OF INVENTION: COMPUTATIONAL METHOD FOR IDENTIFYING ADHESIN AND ADHESIN-LIKE
FITTLE OF INVENTION: PROTEINS OF THERAPEUTIC POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR FILING DATE: 1999-07-08
                ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENGTH: 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENGTH: 126
                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
les 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: DE 19931420.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1999-07-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          137 LLEVRR 142
                                                                                                                                                                                                                                                                                                                                                  103 VDKALQ 108
                                                                                                                                                                                                                                                                                                                   36 VDKALQ 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58 LLEVRR 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PatentIn version 3.3
                                                                                                                                                                                                                                                                                                                                                2.7%;
100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                      ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2004-02-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                   k; Pred. No. 78
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            $; Score 6; DB 7
$; Pred. No. 74;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                      DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 7;
5. 74;
                                                                                                                                                                                                                                                                                                                                                                                                                        Length 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                       ۰ بې
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

Query Match

2.7%;

Score 6;

DB 7;

Length 145;

```
RESULT 50
US-11-087-099-5484
; Sequence 5484, Application US/11087099
; Publication No. US20060041961A1
; GENERAL INFORMATION:
APPLICANT: Abad, Mark S. et al.
; TITLE OF INVENTION: Genes and Uses for Plant Improvement
; TITLE OF INVENTION US GENES AND USES FOR PLANT IMPROVEMENT SECULUMBER: US/11/087,099
; CURRENT APPLICATION NUMBER: US/11/087,099
; CURRENT FILING DATE: 2005-03-22
; NUMBER OF SEQ ID NOS: 12464
; SEQ ID NO 5484
LENCTH: 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 194, Application US/10510386
; Publication No. US20050244922A1
; GENERAL INFORMATION:
APPLICANT: Andersen, Jens Tonne
APPLICANT: Clausen, Ib Groth
APPLICANT: Olsen, Peter Bjarke
APPLICANT: Rasmussen, Michael Dolberg
TITLE OF INVENTION: Improved Bacillus Host Cell
FILE REFERENCE: 10294.204-US
CURRENT APPLICATION NUMBER: US/10/510,386
; CURRENT FILING DATE: 2004-10-04
; NUMBER OF SEQ ID NOS: 248
; SOFTWARE: Patentin version 3.3
; SEQ ID NO 194
; LENGTH: 163
; Type: PAT
ORGANISM: Bacillus licheniformis
US-10-510-386-194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 49
US-10-510-386-194
Search completed: March 4, 2006, 07:14:41 Job time: 22 secs
                                                                               밁
                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Triticum aestivum
US-11-087-099-5484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 100.0%; Pred. No. 84; Matches 6; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.7%; Score 6; DB 6; Best Local Similarity 100.0%; Pred. No. 94; Matches 6; Conservative 0; Mismatches
                                                                                                                                                               Matches
                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130 QQEEEE 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    143 QQEEEE 148
                                                                               104 ISGPLS 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27 TKWVNS 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48 TKWVNS 53
                                                                                                                    9 ISGPLS 14
                                                                                                                                                       6; Conservative
                                                                                                                                                           2.7%; Score 6; DB 7;
100.0%; Pred. No. 95;
ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                  Length 165;
                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             °,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Word_size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table: OLIGO Gapop 60.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Listing first 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92:
                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB DB
                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq length:
seq length:
      protein search, using sw model
                                                                                                                                                                                                                                                                                                                                           %
Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                       654321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1867569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-695-994A-7
220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MELORTSSISGPLSPAYTGQ......ONYKNFNSRRTASDHSWSGM 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Published Applications AA Main:*

1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*

2: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*

3: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep:*

4: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep:*

5: /cgn2_6/ptodata/1/pubpaa/US11_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                 100.0
56.4
56.4
44.1
     Copyright
                                                                                                                       80 80
                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4, 2006, 07:10:46; Search time 165 Seconds (without alignments) 557.106 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000000000
                                                                                                                      220
2154
2154
2154
21630
2360
2137
2137
2380
2390
2559
2559
2559
177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seqs,
  2326
1355
1355
1355
1355
5373
5430
7201
5385
5496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.7 (c) 1993 - 2006 Biocceleration
                                                                                                                                                                                                                                                                                                                                             DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapext 60.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                417829326
                                                  Ħ
 $-10-264-049-2841

$-10-756-149-4730

$-11-097-143-12420

$-09-945-917-46

$-09-945-917-46

$-10-862-195-1550

$-10-862-195-1551

$-10-695-994-20

$-10-369-493-5251

$-10-369-493-5251

$-10-369-493-5252

$-10-369-493-5252

$-10-369-493-5252

$-11-097-143-26253

$-11-097-143-26253

$-11-097-143-26253

$-11-097-143-26253
                                                                                                                                                                                           S-10-805-684-150

S-10-408-765A-2431

S-10-170-385-15

S-09-945-917-43

S-10-408-765A-2093

S-10-756-149-4806

S-10-972-637-2

S-10-972-637-2

S-10-972-6-149-5749

S-09-945-917-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               parameters:
                                                                                                                                                                                                                                                                                                                                            Description
                                                           Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                            Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                            Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                              Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ltd
  7, Appli
15, Appl
15, Appl
15, Appl
2431, Appl
24, Appl
29, Appl
20, Appl
20, Appl
20, Appl
40, Appl
40, Appl
40, Appl
40, Appl
40, Appl
4130, Appl
1551, Appl
1551, Appl
5252, Appl
5252, Appl
5252, Appl
5252, Appl
5253, Appl
   US-10-425-114-60052
US-10-425-114-5298
US-10-425-114-3599
US-10-425-114-3599
US-10-425-115-36951
US-10-767-701-50379
US-10-767-701-50379
US-10-767-701-50379
US-10-425-115-36932
US-10-425-115-36932
US-10-427-125-115-319430
US-10-427-125-125-242617
US-10-128-714-8119
US-10-427-125-135-242617
US-10-427-131-634
US-10-427-131-634
US-10-427-131-634
US-10-428-131-634
US-10-428-131-7644
US-10-428-131-764
US-10-428-131-764
US-10-428-131-764
US-10-428-131-764
US-10-428-131-764
US-10-428-139-2565
US-10-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JS-10-450-763-42286

JS-10-424-5115-352183

JS-10-424-599-237993

JS-10-425-114-60052

JS-10-425-114-65298

JS-10-425-114-36559

JS-10-426-765A-732
             Sequence
                                                                                                                                                                                                                                Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                2426721,

2426721,

241617,

241617,

241611,

241611,

241611,

241611,

241611,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

241612,

2
188861,
7, Appli
4408, Ap
                                                                     1967, Ap
6, Appli
202407,
195145,
                                                                                                                      107253,
37917, ;
165499,
                                                                                                                                                       232699,
56850, A
645, App
645, App
14021, A
37707, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18430,
138843,
3119, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5681, A
50379,
368921,
196724,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42286,
352183
237993
60052,
65298,
36959,
731, A
```

169 170 171 172	166 167	164	162	2.6	ώ öö					,	ow	ω.	70	າຫ	.4.										∞ م	7 6	יט ה				ω ο	7 0	თ Մ	4. 1	ωĸ	31	10	108	107	0 0	0.4	3 2	
11111	111	<b>1</b>	<b>7</b> - <b>7</b> -	7	7 7	7	7	7 7	7	7 ~	7	7	7 <	7	7	7 7	7	7	17	7 7	7,	7	7 7	7	<b>1                                    </b>	7	7	7	7	<b>1</b>	7,	<b>1</b> 7	7 -	1 7	7	J 7	7	7 -	7	7 '	<b>1</b>	7	<b>1</b>
4 4 4 4 4 1 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																																											
5 US-10-501-282-5656 4 US-10-424-599-148023 4 US-10-309-175-4 4 US-10-437-963-118208 4 US-10-434-599-148200	US-10-43/-963-1626 US-10-424-599-2408 US-10-128-714-3539 US-10-128-714-8539	US-10-369-493-139 US-10-437-963-188	US-10-437-963-1993	US-10-701-919-4	US-10-732-923-1010 US-10-732-923-1010	US-1	US-10-491-823-328	US-10-489-372-1 US-10-491-823-2	US-11-069-633-4	US-10-732-923-1	US-10-732-923-1	US-10-732-923-1	US-10-994-726-6	US-10-732-923-10148	US-10-425-115-2	US-10-994-726-6	US-10-489-372	US-10-351-334	US-1	US-10-425-115	US-10-425-114-68383	US-10-767-701	US-10-425-115 US-10-739-930	US-10-425-114-52590	US-10-732-923	US-10-424-599	US-10-425-115	US-10-767-701	US-10-369-493-10635	US-10-425-115	US-10-425-114	US-10-425-115-34450	US-10-424-599	US-10-369-493-18530	US-10-029-386-32067	US-10-425-115-215	US-10-260-708-49	US-10-425-115-20/33	US-10-425-115-253	US-10-732-923-10045	US-10-425-115-241	US-10-309-175-9	US-1
e 5656, e 148023 e 4, App e 118208	ICE 10202 ICE 24081 ICE 3539,		11.	ce 4, App	 	ice 1	E ao	ເດຍ 1 ເດຍ 2	ce 4		Ce 1	Ce 1	0 0	C G	Ce	9 6	6	0 0	6	9 6	6 6	6	0 0 0 0	9	9 6	6 6	3 6	Ce 953	ce 10635,	ce 23392 ce 16550	ce 42151	ce 344500,	0 6	ce 18530	ce 32067,	ce 215	ce 49,	ce 4110,	ce 25337	ce 1004	ce 24130:	ce 9, F	Sequence 237731,
2242 2443 2444 2465	22 2 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	237							_		_		220	218	217	216	214	213	211	209	208	2006	205	203	201	200	198	197	195	193	192	190	189	187	186	100 A	183	182	180	179	177	176	174 175
242 7 243 7 244 7 245 7 246 7			235	233	231 232	230	228	226	225	223	222	221																		193 7 194 7		190 7											
7 7 7 7 7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	777	1-1· 1ωυ	235 7 3	233 7 3 234 7 3	231 7 3 232 7 3	230 7 3	228 7 3	226 7 3 227 7 3	225 7 3	224 7 3	222 7 3	221 7 3	7 -	1 <b>7</b> 3 <b>3</b>	7 3	7 -	1 7 1 9	7 3	1 7 ·	7 7	17	. 7 . 3	7 7	17 13	7 7	7	1 7 1 3.	7 .	17	7 7 u u	7	<b>7</b> 7	7 .	1 7 1 3.	7 3.	7 7	17	7 3.	ء ب	7 3.	7 7	7 3.	7 3.
7 3.2 1118 7 3.2 1135 7 3.2 1135 7 3.2 1146 7 3.2 1150	7 3.2 1100	7 3.2 1090	235 7 3.2 1074 235 7 3.2 1088	233 7 3.2 977 234 7 3.2 1045	231 7 3.2 956 232 7 3.2 960	230 7 3.2 923	228 7 3.2 876	226 7 3.2 871 227 7 3.2 876	225 7 3.2 861	224 7 3.2 857	222 7 3.2 854	221 7 3.2 836	7 3.2 764	7 3.2 737	7 3.2 731	7 3.2 731	7 3.2 730	7 3.2 717	7 3.2 702	7 3.2 701 702	7 3.2 701	7 3.2 698	7 3.2 692	7 3.2 673	7 3.2 669	7 3.2 656	7 3.2 656	7 3.2 649	7 3.2 629	7 3.2 600	7 3.2 598	7 3.2 597	7 3.2 595	7 3.2 594	7 3.2 553	7 3.2 548	7 3.2 540	7 3.2 524	7 3.2 470	7 3.2 454	7 3.2 450	7 3.2 445	7 3.2 440
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	7 3.2 1100 5 US 7 3.2 1100 5 US 7 3.2 1100 5 US	7 3.2 1090 4 US 7 3.2 1091 4 US	235 7 3.2 1074 4 US	233 7 3.2 977 4 US	231 7 3.2 956 4 US	230 7 3.2 923 5 US	228 7 3.2 876 5 US	226 7 3.2 871 6 US 227 7 3.2 876 5 US	225 7 3.2 861 6 US	224 7 3.2 857 4 US	222 7 3.2 854 5 US	221 7 3.2 836 4 US	7 3.2 764 4 US	7 3.2 737 3 US	7 3.2 731 5 US	7 3.2 731 4 US	7 3.2 730 4 US	7 3.2 717 4 US	7 3.2 702 4 US.	7 3.2 701 4 US 7 3.2 702 4 US	7 3.2 701 4 US	7 3.2 698 4 US	7 3.2 690 4 US	7 3.2 673 4 US-	7 3.2 669 4 US-	7 3.2 656 5 US	7 3.2 656 3 US	7 3.2 649 4 US	7 3.2 629 4 US	7 3.2 600 4 US-	7 3.2 598 4 US	7 3.2 597 4 US-	7 3.2 595 4 US-	7 3.2 594 5 US-	7 3.2 553 4 US-	7 3.2 548 4 US-	7 3.2 540 4 US-	7 3.2 524 3 US-	7 3.2 470 4 US-	7 3.2 454 5 US	7 3.2 450 5 US-	7 3.2 445 4 US-	7 3.2 440 4 US- 7 3.2 441 5 US-

大人をおいている はんしょうこうしゅ しょうしゅんし

				306	304	302	301	299	297	295 6	294	292	290	288 289	286 287	284 285	282 283	280 281	278 279	276	274	272	270 271	268 269	266 267	264 265	262 263	261	259	257 258	201	25 5 5 7	252 253	250 251	248 249
314 315 316 317	311 312 313	309 310	08	0, 0,																															
തതതത	, n n n n	n on on	. თ თ	. თ თ	. თ. (	თ თ	თ თ	ათთ	n on c	<b>n</b> o	ο σ	n 01 (	יסת	ን ወ	თთ	თთ	67	7 7	7 7	<b>7</b> 7 .	<b>J J</b> •	7	7	7 7	7 7	77	7 7	7	7	7 7	17.	7	7 7	7 7	7
22.7																																			
	31 30	រសស	25	23	21	22	200	200	20.	20	20	19	18	18	10	1010	2442 10	2442 2442	2442 2442	2442	2441	2441	2441 2441	2429 2440	1644 2285	1407 1583	1336 1383	1314	1285	1285 1285	1285	1202	1179 1179	1162 1172	1153 1161
4 7 4 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2																																			
US-10-425-115-234358 US-10-450-763-32778 US-10-339-740-254 US-10-425-115-204044 US-10-351-641-760	1-06 9-97 0-96	0-05	9-97	9-98	0-25	9-96	0-86:	0-47	0-47	0-47	0-47	80	0-84	0-46	0-200 9-870	0-20 0-20	0-84	0-73:	0-47	0-47	0-73	0-47	0-10	0-73	0-408-765A-919 0-773-446-101	0-73:	0-36	0-75	1-05	0-17	0-20	0-40	9-97:	0-09	0-82 0-03
Sequence 234 Sequence 327 Sequence 254 Sequence 204 Sequence 760	61	71	71	30	48	44	67	10,	, co ;	ω	24	, O I	900	23	29	12	92	18	64.4	200	180	64	2 8	9 6	10	15 15	17 36	56	27	31 12	27	19	10	35	
435 778 404 0,	38, A App App	, App	3, Ap	5, Ap 5, Ap	App	App	7, Apj	day ,	Appl	Appli	Appl:	Appli	Appli	Appl	o, Apr	8, Apr	, App.	450, 451,	5, Apr	1, App	429, A	3, App	Appli Appli	427, A	9, App 1. App	59, Ap 9486,	23, Ap 00, Ap	72, Ap	3, App	7, App 6, App	3, App	7, App	9, App 9, App	05, Ap Appl	
8, A App App	22.5	,	מים	ס ס	_,	. س	o'o			•	م .م	,					0 –	<b>D D</b>																	
App	01 1	ייי	יים פים	ס' סי	μ,	<b>،</b> ص		7		•	<b>-</b> - 4						0 -	. هر هر																1	
App			·	ס' ס'														- A C																1g	
3 9 9 3 9 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9	3 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	388	38	37	37	37		37	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		36		36	3 3 5	35	35	35	355	ພ ພ ເ	יט גע נג א א ת	444	4.4	44	44	ωنم	ωù		ωú	ນ ເມ	ມູມູ	32			<b></b>	32
387 388 399 391	384 385	382 383	380 381	378 379	377	375	373	372	370	368	366 367	3.65	) (O) (	361	359 360	357 . 358	355 356	353 354	351 352	3 4 9 0	47	45	43	41	40	37	335	44.6	3 G G	330 331	329	327	325	323 324	321
387 6 2. 390 6 2. 391 6 2.	384 385 6 2.	382 6 2.	380 6 2. 381 6 2.	378 6 2. 379 6 2.	377 6 2.	375 6 2.	373 6 2. 374 6 2.	371 6 2.	370 6 2.	368 6 2.	366 6 2. 367 6 2.	365 6 2.	3063	361 6 2.	359 6 2. 360 6 2.	357 . 6 2. 358 6 2.	355 6 2. 356 6 2.	353 6 2. 354 6 2.	351 6 2. 352 6 2.	349 6 2.	47 6 2.	6	443 66 2.	41 6 2.	40 6 2.	37 6 2. 38 6 2.	335 6 2. 336 6 2.	34 6 2.	3332	330 6 2. 331 6 2.	329 6 2.	327	325 6 2. 326 6 2.	323 6 2.	321 6 2. 322 6 2.
387 6 2.7 70  9 388 6 2.7 70  9 399 6 2.7 70  390 6 2.7 70  391 6 2.7 71	384 6 2.7 69 385 6 2.7 69 386 6 2.7 70	382 6 2.7 68 383 6 2.7 69	380 6 2.7 68 381 6 2.7 68	378 6 2.7 68 379 6 2.7 68	377 6 2.7 68	375 6 2.7 67 376 6 2.7 67	373 6 2.7 67 374 6 2.7 67	371 6 2.7 66 372 6 2.7 67	370 6 2.7 65	368 6 2.7 65	366 6 2.7 62 367 6 2.7 65	365 6 2.7 62	363	361 6 2.7 60 362 6 2.7 60	359 6 2.7 59 360 6 2.7 59	357 . 6 2.7 . 58 358 6 2.7 . 59	355 6 2.7 58 356 6 2.7 58	353 6 2.7 56 354 6 2.7 58	351 6 2.7 55 352 6 2.7 55	349 6 6 2.7 54	47 6 2.7 53	45 6 2.7 52	43 6 2.7 52	41 6 2.7 51	39 6 2.7 49 40 6 2.7 50	37 6 2.7 47 38 6 2.7 48	335 6 2.7 45 336 6 2.7 46	34 6 2.7 45 34 6 2.7 45	332 6 2.7 45	330 6 2.7 42 331 6 2.7 44	329 6 2.7 42	327 6 2.7 42	325 6 2.7 41 326 6 2.7 42	323 6 2.7 40 324 6 2.7 40	321 6 2.7 39 322 6 2.7 39
387 6 2.7 70 4 US  1 388 6 2.7 70 4 US  2 389 6 2.7 70 4 US  3 390 6 2.7 70 4 US  3 391 6 2.7 71 4 US	384 6 2.7 69 4 US 385 6 2.7 69 4 US 386 6 2.7 70 4 US	382 6 2.7 68 5 US	380 6 2.7 68 4 US 381 6 2.7 68 4 US	378 6 2.7 68 4 US	377 6 2.7 68 3 US	375 6 2.7 67 5 US	373 6 2.7 67 3 US	371 6 2.7 66 3 US	370 6 2.7 65 5 US	368 6 2.7 65 4 US	366 6 2.7 62 4 US	365 6 2.7 62 4 US	363 6 2.7 60 5 US	361 6 2.7 60 4 US	359 6 2.7 59 4 US	357 . 6 2.7 . 58 5 US	355 6 2.7 58 3 US	353 6 2.7 56 3 US 354 6 2.7 58 3 US	351 6 2.7 .55 4 US 352 6 2.7 55 4 US	350 6 2.7 54 4 US	40 6 2.7 53 4 US	45 6 2.7 52 5 US	43 6 2.7 52 4 US	41 6 2.7 51 3 US	39 6 2.7 49 4 US	37 6 2.7 47 4 US	335 6 2.7 45 4 US	34 6 2.7 45 4 US	332 6 2.7 45 4 08	330 6 2.7 42 5 US	329 6 2.7 42 5 US	327 6 2.7 42 3 US	325 6 2.7 41 4 US 326 6 2.7 42 3 US	323 6 2.7 40 4 US	321 6 2.7 39 4 US
387 6 2.7 70 4 US-1  A 388 6 2.7 70 4 US-1  5 389 6 2.7 70 4 US-1  390 6 2.7 70 4 US-1  391 6 2.7 71 4 US-1	384 6 2.7 69 4 US-1 385 6 2.7 69 4 US-1 386 6 2.7 70 4 US-1	382 6 2.7 68 5 US-1	380 6 2.7 68 4 US-1 381 6 2.7 68 4 US-1	378 6 2.7 68 4 US-1 379 6 2.7 68 4 US-1	377 6 2.7 68 3 US-C	375 6 2.7 67 5 US-1	373 6 2.7 67 3 US-0	371 6 2.7 66 3 US-US-US-US-US-US-US-US-US-US-US-US-US-U	370 6 2.7 65 5 US-1	368 6 2.7 65 4 US-1	366 6 2.7 62 4 US-1 367 6 2.7 65 4 US-1	365 6 2.7 62 4 US-1	363 6 2.7 60 5 UC-1	361 6 2.7 60 4 US-1	359 6 2.7 59 4 US-1	357 6 2.7 58 5 US-1	355 6 2.7 58 3 US-0	353 6 2.7 56 3 US-0	351 6 2.7 55 4 US-1	349 6 2.7 54 4 US-1	40 6 2.7 53 4 US-1	45 6 2.7 52 5 US-1	43 6 2.7 52 4 US-1	41 6 2.7 51 3 US-0	39 6 2.7 49 4 US-1	37 6 2.7 47 4 US-1 38 6 2.7 48 4 US-1	335 6 2.7 45 4 US-1	34 6 2.7 45 4 US-1	332 6 2.7 45 4 US-1	330 6 2.7 42 5 US-1	329 6 2.7 42 5 US-1	327 6 2.7 42 3 US-0	325 6 2.7 41 4 US-1	323 6 2.7 40 4 US-1	321 6 2.7 39 4 US-1
387 6 2.7 70 4 US-1  A 388 6 2.7 70 4 US-1  5 389 6 2.7 70 4 US-1  5 390 6 2.7 70 4 US-1  5 391 6 2.7 71 4 US-1	384 6 2.7 69 4 US-1 385 6 2.7 69 4 US-1 386 6 2.7 70 4 US-1	382 6 2.7 68 5 US-1	380 6 2.7 68 4 US-1 381 6 2.7 68 4 US-1	378 6 2.7 68 4 US-1 379 6 2.7 68 4 US-1	377 6 2.7 68 3 US-C	375 6 2.7 67 5 US-1	373 6 2.7 67 3 US-0	371 6 2.7 66 3 US-US-US-US-US-US-US-US-US-US-US-US-US-U	370 6 2.7 65 5 US-1	368 6 2.7 65 4 US-1	366 6 2.7 62 4 US-1 367 6 2.7 65 4 US-1	365 6 2.7 62 4 US-1	363 6 2.7 60 5 UC-1	361 6 2.7 60 4 US-1	359 6 2.7 59 4 US-1	357 6 2.7 58 5 US-1	355 6 2.7 58 3 US-0	353 6 2.7 56 3 US-0	351 6 2.7 55 4 US-1	349 6 2.7 54 4 US-1	40 6 2.7 53 4 US-1	45 6 2.7 52 5 US-1	43 6 2.7 52 4 US-1	41 6 2.7 51 3 US-0	39 6 2.7 49 4 US-1	37 6 2.7 47 4 US-1 38 6 2.7 48 4 US-1	335 6 2.7 45 4 US-1	34 6 2.7 45 4 US-1	332 6 2.7 45 4 US-1	330 6 2.7 42 5 US-1	329 6 2.7 42 5 US-1	327 6 2.7 42 3 US-0	325 6 2.7 41 4 US-1	323 6 2.7 40 4 US-1	321 6 2.7 39 4 US-1
1358, A     387     6     2.7     70     4 US-10-029-386-27874     Sequence       178, A     388     6     2.7     70     4 US-10-424-599-229358     Sequence       1, App     389     6     2.7     70     4 US-10-425-115-307725     Sequence       1044,     390     6     2.7     70     4 US-10-425-115-340163     Sequence       1, App     391     6     2.7     71     4 US-10-424-599-183419     Sequence	384 6 2.7 69 4 US-10-767-701-60703 Sequ. 385 6 2.7 69 4 US-10-425-115-261687 Sequ. 386 6 2.7 70 4 US-10-106-698-5831 Sequ.	382 6 2.7 68 5 US-10-966-576-63 Sequence of the sequence of th	380 6 2.7 68 4 US-10-424-599-274097 Seqn. 381 6 2.7 68 4 US-10-425-115-191482 Seqn.	378 6 2.7 68 4 US-10-424-599-166978 Seqn. 379 6 2.7 68 4 US-10-424-599-206476 Seqn.	377 6 2.7 68 3 US-09-971-980-63 Sequ	375 6 2.7 67 5 US-10-732-923-21747 Segm	373 6 2.7 67 3 US-09-864-761-40606 Segn	371 6 2.7 66 3 US-09-989-920-219 Sequence 372 6 2.7 67 3 US-09-864-761-33506 Sequence	370 6 2.7 65 US-10-450-763-37255	368 6 2.7 65 4 US-10-437-963-133003 Sequence	366 6 2.7 62 4 US-10-425-115-333817 Sequence 367 6 2.7 65 4 US-10-424-599-161213 Sequence	365 6 2.7 62 4 US-10-425-115-234122 Sequence	363 6 2.7 60 5 US-10-763-712-720-70	361 6 2.7 60 4 US-10-424-599-229175 Sequence 362 6 2.7 60 4 US-10-425-115-190040 Sequence 362 6 2.7 60 4 US-10-425-115-190040 Sequence 362 6 2.7 60 4 US-10-425-115-190040	359 6 2.7 59 4 US-10-437-963-129564 ( 360 6 2.7 59 5 US-10-450-763-34284 (	357 6 2.7 58 5 US-10-966-576-69 (	355 6 2.7 58 3 US-09-945-917-38 1 356 6 2.7 58 4 US-10-424-599-143876 1	353 6 2.7 56 3 US-09-864-761-34621 (	351 6 2.7 55 4 US-10-424-599-204690 352 6 2.7 55 4 US-10-425-115-271198	349 6 2.7 54 4 US-10-425-115-26486 1 349 6 2.7 54 4 US-10-425-115-26486 1 350 6 2 7 54 4 US-10-425-115-26261	47 6 2.7 53 4 US-10-425-115-296394 Sequence 46 6 2.7 53 4 US-10-425-115-296394 Sequence 46 6 2.7 54 US-10-425-115-296397 Sequence	45 6 2.7 52 5 US-10-966-576-67 Sequence	43 6 2.7 52 4 US-10-437-963-134817 Sequence 44 6 2.7 52 4 US-10-437-963-134817 Sequence 5	41 6 2.7 51 3 US-09-864-761-35058 Sequence 42 6 2.7 52 3 US-09-871-380-67 Sequence 42 6 2.7 52 3 US-09-971-380-67	39 6 2.7 49 4 US-10-424-599-253504 Sequenc	37 6 2.7 47 4 US-10-437-963-147175 Sequenc 38 6 2.7 48 4 US-10-425-115-334970 Sequenc	335 6 2.7 45 4 US-10-425-115-355209 Sequenc	34 6 2.7 45 4 US-10-425-114-38666	332 6 2.7 45 4 US-10-008-524A-103 Sequence	330 6 2.7 42 5 US-10-657-851-69 331 6 2.7 44 5 US-10-794-514A-486	329 6 2.7 42 5 US-10-909-119-83 Sequence	327 6 2.7 42 3 US-09-917-340-69 Sequence	325 6 2.7 41 4 US-10-029-386-27473 Sequence 326 6 2.7 42 3 US-09-864-761-48522 Sequence	323 6 2.7 40 4 US-10-038-612-56 Sequenc 324 6 2.7 40 4 US-10-425-115-185768 Sequenc	321 6 2.7 39 4 US-10-312-691-4 322 6 2.7 39 4 US-10-425-115-334345

4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5	4444 444 55 55 55 55 55 55 55 55 55 55 5	4444437 8990122234444444444444444444444444444444444	4444309 444309 4430000000000000000000000	444444 44444 4444 4444 4444 4444 4444 4444	44444 4000 4000 4000 4000 414 414 414 41	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
<b>あのののののの</b>	<b>თ თ თ თ თ თ</b>	, തെ ത ത ത ത ത	<b>თთთთთთთ</b>	<b>თთთთთთთთ</b> თ	, a a a a a a a a a a a a		n o o o o o o o o o o o
					78 78 79 79 79 79 80 80		
					* * * * * * * * * * * * * * * * * * *		
100000	-10-424-599-157 -10-437-963-180 -10-926-683-880 -10-450-763-357 -10-424-599-149 -10-425-115-190	-10-407-543-77 -10-424-599-16643 -10-424-599-22902 -10-425-115-19151 -10-425-115-2854 -09-833-245-1387 -09-833-245-1387	-10-425-115-19786 -10-425-115-21618 -10-425-115-23397 -10-424-049-3394 -10-424-599-26714 -10-424-599-26714 -10-719-933-573 -08-860-844-77	100000000000000000000000000000000000000	1.0-437-963-10466 1.0-425-115-32503 1.0-113-709A-8 1.0-994-915-8 1.0-924-599-17920 1.0-424-599-27186 1.0-425-115-22116 1.0-425-115-22116 1.0-425-115-26624 1.0-437-963-10888 1.0-437-963-10888 1.0-4767-7015-53598	10-424-599-25856 10-424-599-25856 10-425-115-24850 10-425-115-32936 10-425-115-34001 10-424-599-19809 10-424-599-19809 10-283-618-15	10-424-599-22073 10-425-115-35468 10-425-115-18576 10-425-115-26775 10-424-599-17732 10-424-599-27143 110-437-963-11522 10-437-143-29868 10-425-115-19132 10-425-115-19132
ence 4126 ence 6848 ence 1583 ence 2211 ence 2621 ence 2804 ence 6213	ence 1579 ence 1809 ence 3571 ence 1499 ence 1904	ence ence ence	nce nce	nce nce			
		518 521 521 522 524	510 511 512 513 514 515 516		7 4 4 4 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8	44444 480 4880 4880 607	466 469 469 472 472 473 473 473 473
<b>თთთთთთ</b> თ	<b>თთთთთ</b> თ	, , , , , , , , , , , , , , ,					
иииииии				. თ თ თ თ თ თ თ თ თ	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,
2,1,1,1,1,1				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	วะเล่นเล่นเล่น	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
100	.77997		.77 9666666	2.7.7.966	94 95 96 96	22.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	2.7 2.7 89 2.7 89 2.7 90 2.7 91 2.7 91 92 92
100 4 US-10-320-786-116 100 4 US-10-424-599-1680 100 4 US-10-425-115-23000 100 4 US-10-425-115-29752 100 4 US-10-625-115-29752 101 4 US-10-691-590-2 101 4 US-10-425-115-24138 101 5 US-10-450-763-54500	.7 96 6 US-11-135-597 .7 97 4 US-10-437-963 .7 97 4 US-10-425-115 .7 97 4 US-10-425-115 .7 98 4 US-10-425-114 .7 98 5 US-10-450-63 .7 99 4 US-10-437-963	.7 96 5 US-10-780-507 .7 96 5 US-10-780-507 .7 96 5 US-10-780-507 .7 96 5 US-10-780-507 .7 96 6 US-11-135-597 .7 96 6 US-11-135-597 .7 96 6 US-11-135-597	.7 96 4 US-10-190-435 .7 96 4 US-10-321-856 .7 96 4 US-10-424-599 .7 96 4 US-10-424-599 .7 96 4 US-10-325-468 .7 96 5 US-10-627-649 .7 96 5 US-10-627-649 .7 96 5 US-10-780-507	2.7 96 4 US-10-190-435 2.7 96 4 US-10-190-435	2.7 94 4 US-10-437-963-11 2.7 95 4 US-10-437-963-11 2.7 95 4 US-10-427-963-11 2.7 95 4 US-10-425-115-12 2.7 95 6 US-11-135-597-2 2.7 95 6 US-11-135-597-2 2.7 96 3 US-09-216-393-22 2.7 96 3 US-09-216-393-22 2.7 96 4 US-10-059-261-2 2.7 96 4 US-10-190-435-22 2.7 96 4 US-10-190-435-22 2.7 96 4 US-10-190-435-22	2.7 92 5 US-10-450-763 2.7 92 5 US-10-450-763 2.7 92 5 US-10-450-763 2.7 92 6 US-10-437-963 2.7 93 4 US-10-470-701 2.7 93 4 US-10-425-115 2.7 93 5 US-10-450-763 2.7 93 5 US-10-450-763	2.7 89 4 US-10-425-115-33 2.7 89 4 US-10-425-115-33 2.7 89 4 US-10-425-115-35 2.7 89 6 US-10-425-115-35 2.7 90 4 US-10-424-59-31 2.7 90 4 US-10-425-115-12 2.7 90 4 US-10-425-115-12 2.7 91 3 US-09-864-7618-2 2.7 91 3 US-09-864-7618-2 2.7 92 4 US-10-424-599-2 2.7 92 4 US-10-424-599-2

55000000000000000000000000000000000000	554440 54440 54440
๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	, , , , , , , , , , , , , , , , , , , ,
11111111111111111111111111111111111111	
US-10-437-963-141033 US-10-477-963-1511948 US-10-767-701-34416 US-10-425-115-1948 US-10-425-115-1948 US-10-425-115-19492 US-10-426-115-1863 US-10-426-115-1867 US-10-426-115-1867 US-10-426-115-18674 US-10-4	-09-833-245-915 -10-437-963-19678 -10-450-763-35729 -10-424-599-21740 -10-425-114-50527 -10-437-963-13148
Sequence 141033, Sequence 151948, Sequence 151948, Sequence 159892, Sequence 304753, Applemence 1863, Applemence 1863, Applemence 16469, Sequence 242630, Sequence 242630, Sequence 242631, Applemence 242630, Sequence 11, Applemence 24263, Applemence 24264, Applemence 24264, Applemence 24265, Applemen	equence 915, equence 1967 equence 3572 equence 2174 equence 5052 equence 1314
	-
	<b>;</b>
80000000000000000000000000000000000000	612 613 614 616
<b>മെ മ മ മ മ മ മ മ മ മ മ മ മ മ മ മ മ മ മ </b>	. თ თ თ თ თ
113 113 114 115 116 116 117 117 117 117 117 117 117 117	113 113 113 113
0 0 0 4 4 4 4 4 4 4 4 6 0 0 0 0 0 0 0 0	
\$\[ 11.008 - 889 - 65\] \$\[ 11.021 - 928A - 88\] \$\[ 11.022 - 923 - 923\] \$\[ 10.424 - 599 - 221309\] \$\[ 10.425 - 115 - 34049\] \$\[ 10.425 - 115 - 340315\] \$\[ 10.425 - 115 - 36815\] \$\[ 10.427 - 963 - 1195\] \$\[ 10.427 - 963 - 1195\] \$\[ 10.427 - 928 - 115 - 3262\] \$\[ 10.427 - 928 - 115 - 3262\] \$\[ 10.427 - 928 - 115 - 2362\] \$\[ 10.427 - 928 - 115 - 2362\] \$\[ 10.427 - 928 - 115 - 2362\] \$\[ 10.427 - 928 - 115 - 2362\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.427 - 928 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1209\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 - 963 - 1202\] \$\[ 10.437 -	
221648 221648 221648 2211309 221309 221309 221309 2360 2476006 2476006 2476006 2476006 2576006 268351 268351 268351 268351 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 273613 27	70489 71492 718203

750 750 751 752 753 755	745 746 747 748	742 743 744	1 6 6																										
<b>თ თ თ თ თ თ თ თ</b>	തതതത	თთთ	თთთ	, on on •	თ თ ი	n on 0	თ თ (	n on 0	<i>y</i> 0, 0	<b>n</b> on o	<b>አ</b> ው ወ	, o, o,	თთთ	. თ თ	თ თ (	<b>n</b> on 0		n on 0	n on c	n 01 (	<i>a</i> o o	<b>ກ</b> ທ	ത ത	, n c	n on	თ თ	თთ	. თ თ	თთთ
00000000 11777777	22222	2.7 2.7	22.7	2.7	2.7	2.7	2.7	221	22.7	22.7	) N . 7 7 -	2.7	22.7	2.7	2.7	2.7	2.7	22:	22.7	221	2.7	2.7	2.7	2.7	2.7	2.7 2.7	2.7	2.7	2.7 2.7 2.7
1442 1442 1442 1442 1443		-00	<b>&amp;</b> & &	ww	w w (	~ ~		- 0, .	., ., .																				
. w 4 4 4 10 10 4																													
1111110	-10-076-747- -10-094-749- -10-767-701- -10-425-115- -11-057-516-	-10-425-114- -10-425-115- -09-764-868-	-10-424-599- -10-425-114- -10-450-763-	-10-425-115- -10-490-305A	·10-767-701-	10-425-115-	10-425-114- 10-425-115-	10-767-701-	10-437-963-	10-425-114-	10-424-599-	10-425-114-	10-264-237- 10-425-114-	10-724-972A 10-425-115-	10-425-114-	10-335-977-7691	10.	10-276-774-1373	555	10-644-765-198	551	10-437-963-16534 10-424-599-19081	10-425-114-59315 10-437-963-10610	10-424-599-2575	10-106-698-6698 10-424-599-18649	10-	10-004-860-254	109	100
ce 8010, Apce 933, Apce 933, Apce 213560, ce 103390, ce 53806, ce 36247, ce 32817, ce 61462,	quence quence quence	quence 40490 quence 18889 quence 1046,	acuent acuent acuent	quence	Sequence 33964, A Sequence 196227,	Sequence 256701, Sequence 266561,	Sequence 67405, A Sequence 242287,	Sequence 49818, A Sequence 157593,	Sequence 154137, Sequence 34115, A	Sequence 56785, A Sequence 143900,	Sequence 148075, Sequence 164747,	Sequence 62452, A Sequence 265298,	Sequence 1434, Ap Sequence 58363, A	Sequence 7376, Ap Sequence 247329,	Sequence 39501, A Sequence 168022,	Sequence 7691, Ap Sequence 228191,	Sequence 299928, Sequence 263321,	Sequence 1373, Ap Sequence 155496.	Sequence 6037, Ap Sequence 8933, Ap	Sequence 198, App Sequence 277, App	Sequence 110074, Sequence 136824,	Sequence 165340, Sequence 190816,	Sequence 106103,	Sequence 257546,	Sequence 6698, Ap Sequence 186491,	Sequence 176526, Sequence 31679, A	Sequence 254, App	Sequence 254, App Sequence 111, App	399
823 824 825 826 827 828 829 830	818 819 820 821 822	815 816 817	813 814	810 811	808 808	806 807	804 805	802 803	800 801	798 799	796 797		791 792	789 789	786 787		782 783	780 781	778 779	776 777	774 775					766	764	761 762	758 759 760
88888888888888888888888888888888888888								802 803 6	800 .6 801 6			793 794 795										772	771	769 770	767 768				758 6 759 6
	തതതത	, o, o, o,	თთი	าหห	6 6 2 2	<b>თ</b> თ	<b>თ</b> თ	0 0 0	6 6 6 6	8 B	0 O O	793 6 2 794 6 2 795 6 2	999	มอง	าดด	5 5 5	6 6 2 2	ი ი ი ი	0 O	66	5 E	772 6 2. 773 6 2.	771 6 2.	769 6 2. 770 6 2.	767 6 2. 768 6 2.		n on o	, o, o	തെത
6 2.7 161 6 2.7 162 6 2.7 164 6 2.7 164 6 2.7 164 6 2.7 165 6 2.7 165	6 2.7 160 6 2.7 160 6 2.7 161 6 2.7 161	6 2.7 158 6 2.7 159 6 2.7 159	6 2.7 158 6 2.7 158	6 2.7 158 6 2.7 158	6 2.7 158 6 2.7 158	6 2.7 158 6 2.7 158	6 2.7 157 6 2.7 158	6 2.7 156 6 2.7 156	6 2.7 156 6 2.7 156	6 2.7 155 6 2.7 156	6 2.7 155 6 2.7 155	793 6 2.7 155 794 6 2.7 155 795 6 2.7 155	6 2.7 154	6 2.7 154	6 2.7 152 6 2.7 153	6 2.7 152 6 2.7 152	6 2.7 151 6 2.7 151	6 2.7 150 6 2.7 151	6 2.7 150 6 2.7 150	6 2.7 149 6 2.7 149	6 2.7 149 6 2.7 149	772 6 2.7 149 773 6 2.7 149	771 6 2.7 148	769 6 2.7 147 770 6 2.7 148	767 6 2.7 146 768 6 2.7 147	6 2.7 146	6 2.7 146	6 2.7 144 6 2.7 145 6 2.7 145	6 2.7 143 6 2.7 143 6 2.7 144
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6 2.7 160 4 US-10- 6 2.7 160 4 US-10- 6 2.7 161 4 US-10- 6 2.7 161 4 US-10- 6 2.7 161 4 US-10-	6 2.7 158 6 US-11-6 2.7 159 4 US-10-6 2.7 159 4 US-10-10-10-10-10-10-10-10-10-10-10-10-10-	6 2.7 158 4 US-10- 6 2.7 158 5 US-10-	6 2.7 158 4 US-10- 6 2.7 158 4 US-10- 6 2.7 158 4 US-10-	6 2.7 158 4 US-10- 6 2.7 158 4 US-10-	6 2.7 158 3 US-09- 6 2.7 158 4 US-10-	6 2.7 157 4 US-10- 6 2.7 158 3 US-09-	6 2.7 156 4 US-10- 6 2.7 156 5 US-10-	6 2.7 156 4 US-10- 6 2.7 156 4 US-10-	6 2.7 155 6 US-11-	6 2.7 155 4 US-10-6 2.7 155 4 US-10-	793 6 2.7 155 4 US-10 794 6 2.7 155 4 US-10 795 6 2.7 155 4 US-10	6 2.7 154 4 US-10-6 2.7 154 5 US-10-	6 2.7 154 4 US-10-	6 2.7 152 4 US-10-1	6 2.7 152 3 US-09-1 6 2.7 152 4 US-10-1	6 2.7 151 4 US-10-4 6 2.7 151 4 US-10-4	6 2.7 150 4 US-10-4 6 2.7 151 4 US-10-4	6 2.7 150 4 US-10-4 6 2.7 150 4 US-10-4	6 2.7 149 5 US-10-4 6 2.7 149 5 US-10-4	6 2.7 149 4 US-10-1 6 2.7 149 4 US-10-7	772 6 2.7 149 2 US-08-08-773 6 2.7 149 4 US-10-1	771 6 2.7 148 4 US-10-4	769 6 2.7 147 4 US-10-4	767 6 2.7 146 5 US-10-4 768 6 2.7 147 4 US-10-4	6 2.7 146 4 03-10-1	6 2.7 146 4 US-10-2	6 2.7 144 5 US-10-8 6 2.7 145 4 US-10-1	6 2.7 143 4 US-10-7 6 2.7 143 6 US-11-0 6 2.7 144 4 US-10-1

08088888888888888888888888888888888888	831 832 834 835
, , , , , , , , , , , , , , , , , , ,	noonoo
11111111111111111111111111111111111111	7 7 6 6 6 6 7 7 6 6 6 6
US-10-427-963-191748 US-10-424-599-259870 US-10-425-115-211189 US-10-425-115-211189 US-10-425-115-265345 US-10-425-115-265345 US-10-617-316-261 US-10-617-31-3797 US-10-425-115-360887 US-10-425-115-360887 US-10-425-115-313041 US-10-617-31-36-261 US-10-617-31-36-261 US-10-617-31-36-261 US-10-617-31-36-261 US-10-617-31-36-261 US-10-617-31-36-361 US-10-617-31-361 US-10-617-31-361 US-10-617-31-361 US-10-61	=====
$\mathcal{I}_{\mathcal{I}}$	equence 250 equence 130 equence 490 equence 330 equence 120
	1.
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	904 905 908
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	 
	,,,,,,,,,,
· · · · · · · · · · · · · · · · · · ·	
11111111111111111111111111111111111111	.7 186 .7 187 .7 187 .7 187 .7 187
0 8 8 8 8 8 8 8 8 8 8 8 8 9 9 9 9 9 9 9	86 87 87 44 44 44 7
	86 87 87 44 44 44 7

```
Sequence 7, Application US/1069594

Publication No. US20040142354A1

GENERAL INFORMATION:
APPLICANT: MISHRA, LOPA

TITLE OF INVENTION: GENES CODING FOR EARLY LIVER DEVELOPMENT...
FILE REFERENCE: P04470US1/BAS

CURRENT APPLICATION NUMBER: US/10/695,994

CURRENT FILING DATE: 2003-10-30

PRIOR APPLICATION NUMBER: 09/431,184

PRIOR FILING DATE: 1999-11-01

PRIOR FILING DATE: 1999-04-30

PRIOR APPLICATION NUMBER: US/08/6856

PRIOR FILING DATE: 1998-04-30

PRIOR APPLICATION NUMBER: US/08/681,349

PRIOR FILING DATE: 1997-04-30

PRIOR FILING DATE: 1997-04-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
US-10-695-994-7
                                            밁
                                                                 S
                                                                                                           Ś
                                                                                                                                                                                                                                    SOPTWARE: PatentIn version 3.0; SEQ ID NO 7; LENGTH: 220; TYPE: PRT; ORGANISM: Mus musculus US-10-695-994-7
밁
                   Ś
                                                                                          8
                                                                                                                                       용
                                                                                                                                                                                     Matches
                                                                                                                                                                                                Query Match 100.0%; Score 220; DB 4; I Best Local Similarity 100.0%; Pred. No. 7.5e-201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                   121
181
                      181
                                                                                                                61
                                                                                          61 RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                                                                                                                                        ۳
                                                                                                                                                     1 MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       თთთთთთთთთთთთთთთთთთთ
                                                                                                          RITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENM
                QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                     MELQRTSSISGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKMVNSHLARVSC
                                             GSHDIVDGNHRLTTLELLEVRRQQEEEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVS
                                                           GSHDIVDGNHRLTTLELLEVRRQQEBEERKRRPPSPDPNTKVSEEAESQQWDTSKGDQVS
QNGLPAEQGSPRVSYRSQTYQNYKNFNSRRTASDHSWSGM
                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-767-701-38488
US-11-097-143-29091
US-10-767-701-46117
US-10-029-386-32952
US-10-029-386-32952
US-10-489-864-71
US-10-437-931-41157
US-10-425-115-233480
US-10-425-115-261828
US-10-425-115-261828
US-10-427-933-338396
US-10-437-963-138396
US-10-437-963-138396
US-10-437-963-138396
US-10-437-963-138396
US-10-434-963-144
US-10-291-128-144
US-10-291-128-144
US-10-291-128-144
US-10-291-128-144
US-10-953-399-42
US-10-953-399-42
US-10-953-399-42
US-10-424-599-194225
US-10-424-599-194225
                                                                                                                                                                                     0,
                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                           Length 220;
220
                      220
                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 261828,
Sequence 51176, A
Sequence 138396,
Sequence 7330, Ap
Sequence 70, Appl
Sequence 15, Appl
Sequence 144, Appl
Sequence 144, Appl
Sequence 239247,
Sequence 44085, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 38488, A
Sequence 29091, A
Sequence 46117, Ap
Sequence 9234, Ap
Sequence 32952, A
Sequence 17, Appl
Sequence 1472, Ap
Sequence 41157, A
Sequence 41157, A
Sequence 411674, Ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144, App
42, Appl
36258, A
                                                                                                                                                                                      Gaps
                                                                                           120
                                             180
                                                                   180
                                                                                                                 120
                                                                                                                                        60
```

```
Sequence 4, Application US/10695994

| Publication No. US20040142354A1
| GENERAL INFORMATION:
| APPLICANT: MISHRA, LOPA
| TITLB OF INVENTION: GENES CODING FOR EARLY LIVER DEVELOPMENT...
| FILE REFERENCE: P04470US1/BAS
| CURRENT APPLICATION NUMBER: US/10/695,994
| CURRENT FILING DATE: 2003-10-30
| PRIOR APPLICATION NUMBER: 09/431,184
| PRIOR FILING DATE: 1999-04-30
| PRIOR FILING DATE: 1999-04-30
| PRIOR APPLICATION NUMBER: US/08656
| PRIOR APPLICATION NUMBER: US/08/08656
| PRIOR APPLICATION NUMBER: US/08/081349
| PRIOR FILING DATE: 1999-04-30
| PRIOR FILING DATE: 1997-04-30
                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/459,936
PRIOR SEQ ID NOS: 161
SOFTWARE: Patentin Ver. 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; SOFTWARE: PatentIn version 3.0
; SEO ID NO 4
; LENGTH: 2154
; TYPE: PRT
; ORGANISM: Mus musculus
US-10-695-994-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 2
US-10-695-994-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 3
US-10-805-684-150
; Sequence 150, Application US/10805684
; Publication No. US20050100966A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                            ; ORGANISM: Mus musculus US-10-805-684-150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 56.4%; Score 124; DB 4; L
Best Local Similarity 100.0%; Pred. No. 1.2e-108;
Matches 124; Conservative 0; Mismatches 0;
Query Match 56.4%; Score 124; DB 5; L
Best Local Similarity 100.0%; Pred. No. 1.2e-108;
Matches 124; Conservative 0; Mismatches 0;
                                                                                                                                                                                         SEQ ID NO 150
LENGTH: 2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: SAKAMOTO, APPLICANT: TAKEDA,
                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130 HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10 SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10 SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAKESHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2154
                                                         Length 2154;
          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
```

Ś

10 SGPLSPAYTGQVPYNYNQLBGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-408-765A-2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 4
                                                                                                                                                                                                                                                                                                                                                                   US-10-170-385-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-408-765A-2431
                                                                                                                                                                                                                                                                                                                                  Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Publication No.
                              CURRENT APPLICATION NUMBER: US/10/170,385
CURRENT FILING DATE: 2002-06-12
PRIOR APPLICATION NUMBER: PCT/6902/01662
PRIOR FILING DATE: 2002-04-08
                                                                                                     TITLE OF INVENTION: ANALYSIS METHOD FILE REFERENCE: 532682000100
                                                                                                                                                                                                                                                                                 APPLICANT: Ward
APPLICANT: Mun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 3077
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/10/408,765A
CURRENT FILING DATE: 2003-04-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Warnock, Dale E.
TITLE OF INVENTION: TARGETS FOR THERAPEUTIC INTERVENTION
TITLE OF INVENTION: IDENTIFIED IN THE MITOCHONDRIAL PROTEOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Ghosh, Soumitre APPLICANT: Fahy, Eoin D.
                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 1630
TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILE REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                         APPLICANT:
                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                            PPLICANT:
APPLICATION NUMBER: PCT/GB01/05458 FILING DATE: 2001-12-10
                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                        110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2431, Application US/10408765A ion No. US20040101874A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130 HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                          97 IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                                                                                                                                                                                                                                                                                      IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RDGRMLIKLLEVLSGERLPKPTKGRMRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SGPLSPAYTGQVPYNYNQLEGRFKQLQDEREAVQKKTFTKWVNSHLARVSCRITDLYTDL
                                                                                                                                                                                                                                                                                                                                 Application US/10170385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Taylor, Steven
Glenn, Gary M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gibson, Bradford W. Taylor, Steven W.
                                                                                                                                                                     Rayner, Willian
Naylor, Stuart
                                                                                                                                                                                                                                                                                Mundy,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhang, Bing
                                                                                                                                                                                                         Binley, Katie Mary
                                                                                                                                                                                                                           White, Jonathan
                                                                                                                                                                                                                                             Harris, Robert Alan
                                                                                                                                         Krige, David
                                                                                                                                                        Kingsman, Susan Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660088.465
                                                                                                                                                                                                                                                                                                  Neil Raymond
                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Soumitra S.
                                                                                                                                                                                                                                                                              Christopher Robert
                                                                                                                                                                                   William Nigel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 97;
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.7e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1630;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
; LENGTH: 2364
; TYPE: PRT
; ORGANISM: Homo S
US-10-170-385-15
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                US-10-408-765A-2093
                                                                                                                                                                                                                                                                                                                                                                 RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Caenorhabditis elegans US-09-945-917-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
US-09-945-917-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 2093
                                                                                                                                                                                                                                                                                                        Sequence 2093, Application US/10408765A Publication No. US20040101874A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity Matches 38; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 43, Application US/09945917 Publication No. US20030042381A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 15
                                                                                                                                                                                                            APPLICANT: Ghosh, S
APPLICANT: Fahy, I
APPLICANT: Zhang,
APPLICANT: Gibson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                            APPLICANT: WARNOCK, Dale E.
TITLE OF INVENTION: TARGETS FOR THERAPEUTIC INTERVENTION
TITLE OF INVENTION: IDENTIFIED IN THE MITOCHONDRIAL PROFILE REFERENCE: 660088.465
                                       CURRENT APPLICATION NUMBER: US/10/408,765A
CURRENT FILING DATE: 2003-04-04
NUMBER OF SEQ ID NOS: 3077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: PROCESSES FOR THE IDENTIFICATION OF COMPOUNDS WHICH TITLE OF INVENTION: CONTROL CELL BEHAVIOUR, THE COMPOUNDS IDENTIFIED AT TITLE OF INVENTION: CHARMACEUTICAL COMPOSITIONS CONTIABING THEM AND THE TITLE OF INVENTION: USE IN THE CONTROL OF CELL BEHAVIOUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/945,917
CURRENT FILING DATE: 1998-09-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Bogaert, APPLICANT: Vandeke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE:
                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: P/14-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110
                                                                                                                                                                                                                                                                                                                                                                                                                        18 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37 DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97 IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PatentIn Ver. 2.1
                                                                                                                                                                                                                                Fahy, Eoin D.
Zhang, Bing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEREAVOKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
                                                                                                                                                                 Gibson, Bradford W. Taylor, Steven W. Glenn, Gary M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vandekerckhove,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sapiens
                                                                                                                                                                                                                                                                     Soumitra S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Thierry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44.1%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.3%; Score 38; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.7e-28;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        THEIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
```

```
WS-10-756-149-4806

US-10-756-149-4806

; Sequence 4806, Application US/10756149

; Publication No. US20050181375A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Homo sapiens US-10-408-765A-2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-972-637-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-756-149-4806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 4806
LENGTH: 2137
TYPE: PRT
                                                                               US-10-972-637-2
Query Match
Best Local S
Matches 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/10972637 Publication No. US20050106669A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                      SEQ ID NO 2
LENGTH: 2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Aziz, Natasha
APPLICANT: Zlotnik, Albert
TITLE OF INVENTION: NOVEL METHODS OF DIAGNOSIS OF METASTATIC CANCER, COMPOSITITILE OF INVENTION: METHODS OF SCREENING FOR MODULATORS OF METASTATIC CANCER FILE REFERENCE; file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE APPLICANT: ROTHSTEIN, Jeffrey D. APPLICANT: JACKSON, Mandy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/756,149
CURRENT FILING DATE: 2004-01-12
NUMBER OF SEQ ID NOS: 5818
                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/972,637
CURRENT FILING DATE: 2004-10-25
PRIOR APPLICATION NUMBER: US/09/695,795
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: US 60/161,007
PRIOR APPLICATION NUMBER: US 60/206,157
PRIOR APPLICATION NUMBER: US 60/206,157
                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: ORLOV, Irina
TITLE OF INVENTION: GLUTAMATE TRANSPORTER ASSOCIATED PROTEINS AND METHODS OF USE THER
FILE REFERENCE: JHU1650-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn version 3.2
                                                                                                                                                                             NUMBER OF SEQ ID NOS: 22
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                 PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Homo Sapiens
                                                                                                 ORGANISM: Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38; Conservative
  l Similarity
27; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                                                     LIN, Glen
LAW, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative .
  (larity 100.0%;
Conservative (
                                                                                                                                                                                                                    2000-05-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17.3%; ord. No. 100.0%; Pred. No. Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17.3%; Score 38; DB 5; L
100.0%; Pred. No. 8.4e-27;
                                        12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 38; DB 4; L; Pred. No. 8.3e-27;
Score 27; DB 5; L; Pred. No. 2.7e-16; 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2106;
                                    Length 2388;
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPOSITIONS AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
    0
```

```
; TYPE: PRT
; ORGANISM: Homo
US-10-756-149-5749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-756-149-5749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                 밁
                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Caenorhabditis elegans US-09-945-917-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
                                                                                                   RESULT 12
US-10-264-049-2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-945-917-40
                                                                                                                                                                                                                                                                Best Loc
Matches
Sequence 2841, Application US/10264049
Publication No. US20040005579A1
GENERAL INFORMATION:
APPLICANT: Birse et al.
APPLICANT: Nucleic Acids, Pr
                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: P/14-1
CURRENT APPLICATION NUMBER: US/09/945,917
CURRENT FILING DATE: 1998-09-21
NUMBER OF SEQ ID NOS: 58
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn version 3.2 SEQ ID NO 5749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5749, Application US/10756149 Publication No. US20050181375A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 40, Application US/09945917 Publication No. US20030042381A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Bogaert, Thierry
APPLICANT: Vandekerckhove, Joel
APPLICANT: Vandekerckhove, Joel
TITLE OF INVENTION: PROCESSES FOR THE IDENTIFICATION OF COMPOUNDS WHICH
TITLE OF INVENTION: CONTROL CELL BEHAVIOUR, THE COMPOUNDS IDENTIFIED AT
TITLE OF INVENTION: USE IN THE CONTROL OF CELL BEHAVIOUR
                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/756,149
CURRENT FILING DATE: 2004-01-12
NUMBER OF SEQ ID NOS: 5818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Aziz, Natasha
APPLICANT: Zlotnik, Albert
TITLE OF INVENTION: NOVEL METHODS OF DIAGNOSIS OF METASTATIC CANCER, COMPOSITIONS AND
TITLE OF INVENTION: METHODS OF SCREENING FOR MODULATORS OF METASTATIC CANCER
FILE REFERENCE: file
                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 2390
                                                                                                                                                                                                                                                              Local Similarity
les 25; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103 LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             87 LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87
                                                                                                                                                                                   16
                                                                                                                                                                                                                    42 VOKKTFTKWVNSHLARVSCRITDLY 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LPKPTKGRMRIHCLENVDKALQFLKEQ 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12.3%; Score 27; DB 5; I
ilarity 100.0%; Pred. No. 2.7e-16;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sapiens
                                                                                                                                                                                                                                                              11.4%; Score 25;
100.0%; Pred. No.
tive 0; Mismatc
                                                                                                                                                                                                                                                                Mismatches
    Proteins,
                                                                                                                                                                                                                                                                                    DB 3;
. 8e-16;
      and Antibodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2390;
                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gape
                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
RESULT 14
US-11-097-143-12420
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
US-10-756-149-4730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; LOCATION: (19)^-; OTHER INFORMATION: Xaa equals any of the twenty naturally occurring L-amino acids US-10-264-049-2841
                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: PRT
; ORGANISM: Homo Sapiens
US-10-756-149-4730
                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/756,149
CURRENT FILING DATE: 2004-01-12
NUMBER OF SEQ ID NOS: 5818
SOFTWARE: PatentIn version 3.2
SEQ ID NO 4730
LENGTH: 2559
                                                              GENERAL INFORMATION:
                                                                                Sequence 12420, Application US/11097143 Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 4730, Application US/10756149 Publication No. US20050181375A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Ver. 3.1
SEQ ID NO 2841
                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                          Best Local
                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Zlotnik, Albert
TITLE OF INVENTION: MOVEL METHODS OF DIAGNOSIS OF METASTATIC CANCER,
TITLE OF INVENTION: METHODS OF SCREENING FOR MODULATORS OF METASTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/264,049
CURRENT FILING DATE: 2002-10-04
PRIOR APPLICATION NUMBER: PCT/US01/18569
PRIOR FILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: US 60/209,467
PRIOR FILING DATE: 2000-06-07
PRIOR FILING DATE: 2000-06-07
NUMBER OF SEQ ID NOS: 4360
TITLE OF INVENTION: DETECTION KIT, SUCH AS NUCLEIC ACID
                       APPLICANT: Venter, J. Craig APPLICANT: et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Aziz, Natasha
APPLICANT: Zlotnik, Alb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: PA133P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: (11) TOTHER INFORMATION: Xaa equals any of the twenty naturally occurring L-amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: MISC_FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: Xaa equals any of the twenty naturally occurring L-amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JAME/KEY: MISC_FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: MISC_FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENGTH: 806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      699 RITTLELLEVRROQEEEERKRRP 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 RLTTLELLEVRROQEESERKRRP 153
                                                                                                                                                                                                                                              37 DEREAVOKKTFTKWVNSHLARV 58
                                                                                                                                                                                                         57 DEREAVOKKTFTKWVNSHLARV 78
                                                                                                                                                                                                                                                                                         22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity 100.0%;
23; Conservative (
                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    file
                                                                                                                                                                                                                                                                                     10.0%; Score 22; DB 5;
100.0%; Pred. No. 1.7e-1
ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                             1.7e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.9e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                            Length 2559;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 806
                                                                                                                                                                                                                                                                                       <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPOSITIONS AND
                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acids
```

```
RESULT 15
US-09-945-917-46
US-09-945-917-46
; Sequence 46, Application US/09945917
; Publication US20030042381A1
밁
                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                               US-09-945-917-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: PRT; ORGANISM: DROSOPHILA US-11-097-143-12420
                                                                                                                                                                                     SEQ ID NO 46
LENGTH: 48
TYPE: PRT
                                                                       Matches
                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 8.6%; Score 19; Best Local Similarity 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: FastSEQ for Windows Version SEQ ID NO 12420
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/945,917
CURRENT FILING DATE: 1998-09-21
NUMBER OF SEQ ID NOS: 58
SOFTWARE: Patentin Ver: 2.1
                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: PROCESSES FOR THE IDENTIFICATION OF COMPOUNDS WHICH TITLE OF INVENTION: CONTROL CELL BEHAVIOUR, THE COMPOUNDS IDENTIFIED AND THEIR TIFLE OF INVENTION: PHARMACEUTICAL COMPOSITIONS CONTIANING THEM AND THEIR TITLE OF INVENTION: USE IN THE CONTROL OF CELL BEHAVIOUR
                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: P/14-1
                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Bogaert,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/191,637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/184,831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 60/161,932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/160,191
PRIOR FILING DATE: 1999-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/157,832 PRIOR FILING DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/11/097,143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: CL000728
                                                                                                                                                                 ORGANISM: Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/173,383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIOR FILING DATE: 1999-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 2000-01-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/175,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1999-12-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1999-10-28
                           107 LQFLKEQRVHLENMGS 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84 LIKLLEVLSGERLPKPTKG 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75 LIKLLEVLSGERLPKPTKG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19;
                                                                     l Similarity
16; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2291
LQFLKEQRVHLENMGS
                                                                                                                                                                                                                                                                                                                                                                                                                       Vandekerckhove,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ID NOS: 43008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000-02-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                                       Thierry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ARRAYS, FOR DETECTING EXPRESSION OF 10,000 OR MORE DROSOPHILA GENES.
                                                                   100.0%; P
                                                                                     7.3%; Score 16; DB 3; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/164,769
48
                                                                                                                                                                                                                                                                                                                                                                                                                       Joe1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6; I
                                                                                                       Length 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                     Gaps
                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

RESULT 16 US-10-862-195-1550 ; Sequence 1550, Application US/10862195 ; Publication No. US20050164324A1

```
Sequence 1551, Application US/10862195
Publication No. US20050164324A1
GENERAL INFORMATION:
APPLICANT: GYGI, STEVEN P.
TITLE OF INVENTION: SYSTEMS, METHODS AND KITS FOR THE REFERENCE: 58890(70207)
CURRENT APPLICATION UNMBER: US/10/862,195
CURRENT FILING DATE: 2004-06-04
PRIOR APPLICATION NUMBER: 60/476,010
PRIOR PILING DATE: 2003-06-04
NUMBER OF SEQ ID NOS: 2245
SOFTWARE: PatentIn version 3.2
SEQ ID NO 1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER INFORMATION: See ; OTHER INFORMATION: and US-10-862-195-1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 17
                                                                                                                                                                                                                                                                                                    멎
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-862-195-1551
                                                                                                                                                                                                                   US-10-695-994-20
                                                                                                                                                                                                                                          RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; FEATURE:
; OTHER INFORMATION: See specification as filed for preferred embodiments; OTHER INFORMATION: and description of phosphorylation sites
US-10-862-195-1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: GYGI, STEVEN P.

TITLE OF INVENTION: SYSTEMS, METHODS AND KITS FOR CHARACTERIZING PHOSPHOPROTEOMES
FILE REFERENCE: 58890(70207)
CURRENT APPLICATION NUMBER: US/10/862,195
CURRENT FILING DATE: 2004-06-04
PRIOR APPLICATION NUMBER: 60/476,010
PRIOR APPLICATION NUMBER: 60/476,010
PRIOR FILING DATE: 2003-06-04
NUMBER OF SEG ID NOS: 2245
SOFTWARE: Patentin version 3.2
SEG ID NO 1550
                                                                                                                                                       Sequence 20, Application US/106
Publication No. US20040142354A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                APPLICANT: MISHRA, LOPA
TITLE OF INVENTION: GRIES CODING FOR EARLY LIVER DEVELOPMENT...
FILE REFERENCE: P04470US1/BAS
CURRENT APPLICATION NUMBER: US/10/695,994
CURRENT FILING DATE: 2003-10-30
PRIOR APPLICATION NUMBER: 09/431,184
PRIOR FILING DATE: 1999-11-01
  PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Homo sapiens FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178 QVSQNGLPAEQGSPR 192
                                                                                                                                                                                                                                                                                                                           178 QVSQNGLPAEQGSPR 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                    w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QVSQNGLPAEQGSPR 17
                                                                                                                                                                                                                                                                                                    QVSQNGLPAEQGSPR 17
                                                                                                                                                                                                Application US/10695994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 6.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           specification as filed for description of phosphorylat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.8%;
PCT/US98/08656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                    Score 15; DB 5; Pred. No. 1e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 15;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         as filed for preferred phosphorylation sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 5;
1e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FOR CHARACTERIZING PHOSPHOPROTEOMES
                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                    Length 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 17;
                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 embodiments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
APPLICANT: Cao, Yongwei
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater; Steven C.
APPLICANT: Slater; Steven C.
APPLICANT: Coldman, Barry S.
APPLICANT: Chen, Xianfeng
TITLE OF INVENTION: EXPRESSION OF MICROBIAL PROTEINS IN
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
FILE REFERENCE: 38-10(52052)B
CURRENT APPLICATION NUMBER: US/10/369,493
CURRENT FILING DATE: 2003-02-28
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR FILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 47374
SEQ ID NO 6374
LENGTH: 2326
               GENERAL INFORMATION:

APPLICANT: Cao, Yongwei
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
APPLICANT: Chen, Xianfeng
TITLE OF INVENTION: EXPRESSION OF MICROBIAL PROTEINS IN
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
FILE REFERENCE: 38-10(52052)B
CURRENT APPLICATION NUMBER: US/10/369,493
CURRENT FILING DATE: 2003-02-28
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR FILING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1998-04-30
PRIOR APPLICATION UMMBER: US 08
PRIOR FILING DATE: 1997-04-30
NUMBER OF SEQ ID NOS: 28
SOFTWARE: Patentin version 3.0
SEQ ID NO 20
LENGTH: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ફ
                                                                                                                                                                                                                                                                                                                                                                                     RESULT 20
US-10-369-493-5251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TYPE: PRT ; ORGANISM: Caenorhabditis elegans US-10-369-493-6374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-369-493-6374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Mus musculus US-10-695-994-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6374, Application US/10369493
Publication No. US20030233675A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 6.4%; Score 14; Best Local Similarity 100.0%; Pred. No. Matches 14; Conservative 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                        Sequence 5251, Application US/10369493 
Publication No. US20030233675A1
NUMBER OF SEQ ID NOS: 47374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match
Local Similarity 100.0%; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             206 FNSRRTASDHSWSG 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110 VOKKTFTKWVNSHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42 VQKKTFTKWVNSHL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 FNSRRTASDHSWSG 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6.4%; Score 14; DB 4; Length 2326;
100.0%; Pred. No. 0.00063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08/841,349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4; L. 7.8e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IN PLANTS FOR PRODUCTION OF
                                                                                                                                                                       IN PLANTS FOR PRODUCTION OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

SEQ ID NO 5251 LENGTH: 1355

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                     ; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-408-765A-741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: PRT ; ORGANISM: Caenorhabditis elegans US-10-369-493-5251
                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-408-765A-741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Caenorhabditis elegans US-10-369-493-5252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-369-493-5252
Query Match
Best Local Similarity
                                                                                                      SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 741
LENGTH: 5373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 525:
LENGTH: 1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 5252, Application US/10369493 Publication No. US20030233675A1
                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                     SENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                       Publication No.
                                                                                                                                                          NUMBER OF SEQ
                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/10/408,765A CURRENT FILING DATE: 2003-04-04
                                                                                                                                                                                                              FILE REFERENCE: 660088.465
                                                                                                                                                                                                                         APPLICANT: Warnock, Dale E.
TITLE OF INVENTION: TARGETS FOR THERAPEUTIC INTERVENTION
TITLE OF INVENTION: IDENTIFIED IN THE MITOCHONDRIAL PROTEOME
                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/10/369,493
CURRENT FILING DATE: 2003-02-28
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR FILING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: EXPRESSION OF MICROBIAL PROTEINS IN PLANTS FOR PRODUCTION OF TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES FILE REFERENCE: 38-10(52052)B
                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Ghosh, Soumitra S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 47374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                   741, Application US/10408765A ion No. US20040101874AI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42 VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79 VQKKTFTKWVN 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hinkle, Gregory J.
Slater, Steven C.
Goldman, Barry S.
Chen, Xianfeng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VOKKTETKWVN 89
                                                                                                                                                                                                                                                                             Gibson, Bradford W.
Taylor, Steven W.
Glenn, Gary M.
                                                                                                                                                                                                                                                                                                                                                 Fahy, Eoin D.
                                                                                                                                                                                                                                                                                                                                  Zhang, Bing
                                                                                                                                                        ID NOS: 3077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
   5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.0%; Score 11; DB 4; Length 1355; 100.0%; Pred. No. 0.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.0%; Score 11;
00.0%; Pred. No.
   Score 11; Pred: No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4;
   DB 4;
0.92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1355;
                 Length 5373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٥,
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-805-684-151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-805-684-151
                                                                                                                                                                                                                                                                    FILE REFERENCE: CL000728
CURRENT APPLICATION NUMBER: US/11/097,143
CURRENT FILING DATE: 2005-04-04
PRIOR APPLICATION NUMBER: 60/157,832
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: 60/160,191
PRIOR APPLICATION NUMBER: 60/161,932
PRIOR APPLICATION NUMBER: 60/161,932
PRIOR FILING DATE: 1999-10-28
PRIOR FILING DATE: 1999-10-28
PRIOR FILING DATE: 1999-10-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JS-11-097-143-40200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 40200, Application US/11097143 Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 5.0%;
Best Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Pa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 151, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                               PRIOR APPLICATION NUMBER: 60/191,637 PRIOR FILING DATE: 2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/805,684
CURRENT FILING DATE: 2004-03-19
PRIOR APPLICATION NUMBER: 60/455,766
PRIOR FILING DATE: 2003-03-19
PRIOR APPLICATION NUMBER: 60/459,936
PRIOR FILING DATE: 2003-04-02
PRIOR APPLICATION NUMBER: 60/460,103
PRIOR APPLICATION NUMBER: 60/460,103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                     PRIOR APPLICATION NUMBER: 60/175,693
PRIOR FILING DATE: 2000-01-12
PRIOR APPLICATION NUMBER: 60/184,831
PRIOR FILING DATE: 2000-02-24
                                                                                                                                                                                PRIOR FILING DATE: 1999-11-12
PRIOR APPLICATION NUMBER: 60/173,383
PRIOR FILING DATE: 1999-12-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: et al.
TITLE OF INVENTION: DETECTION KIT, SUCH AS NUCLEIC ACID
TITLE OF INVENTION: ARRAYS, FOR DETECTING EXPRESSION OF 10,000 OR MORE
TITLE OF INVENTION: DROSOPHILA GENES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Venter, J. Craig APPLICANT: et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: TAKEDA, SHIZU
TITLE OF INVENTION: FHOS-INTERACTING PROTEINS AND USE THEREOF
FILE REFERENCE: 58748(70342)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: SAKAMOTO, APPLICANT: TAKEDA,
                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/164,769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 5430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 44 VOKKTETKWVN 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42 VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79 VOKKTETKWVN 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42 VOKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PatentIn Ver.
FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/10805684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US20050100966A1
                                             2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2003-04-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAKESHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 11; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 5430;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

```
; TYPE: PRT ; ORGANISM: DROSOPHILA US-11-097-143-40200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 25
US-11-097-143-26253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                       멹
                                                                                                                                                                                                                             US-11-097-143-28275
                                                                                                                                                                                                                                                      RESULT 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-11-097-143-26253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/157,832
PRIOR FILING DATE: 1999-10-05
PRIOR PELICATION NUMBER: 60/160,191
PRIOR FILING DATE: 1999-10-19
PRIOR APPLICATION NUMBER: 60/161,932
PRIOR FILING DATE: 1999-10-28
PRIOR APPLICATION NUMBER: 60/164,769
PRIOR FILING DATE: 1999-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
SEQ ID NO 26253
LENGTH: 5385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                 Sequence 28275, Application US/11097143 Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 26253, Application US/11097143
Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Venter, J. Craig

APPLICANT: et al.

TITLE OF INVENTION: DETECTION KIT, SUCH AS NUCLEIC ACID

TITLE OF INVENTION: ARRAYS, FOR DETECTING EXPRESSION OF 10,000 OR MORE

TITLE OF INVENTION: DROSOPHILA GENES.

FILE REFERENCE: CL000728

CURRENT APPLICATION NUMBER: US/11/097,143

CURRENT FILING DATE: 2005-04-04

CURRENT FILING DATE: 2005-04-04
APPLICANT: Venter, J. Craig

APPLICANT: et al.

TITLE OF INVENTION: DETECTION KIT, SUCH AS NUCLEIC ACID

TITLE OF INVENTION: ARRAYS, FOR DETECTING EXPRESSION OF

TITLE OF INVENTION: DROSOPHILA GENES.

FILE REFERENCE: CL000728

CURRENT APPLICATION NUMBER: US/11/097,143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/175,693
PRIOR FILING DATE: 2000-01-12
PRIOR APPLICATION NUMBER: 60/184,831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: DROSOPHILA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 7201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1999-12-28
APPLICATION NUMBER: 60/175,693
FILING DATE: 2000-01-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/173,383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 2000-02-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/191,637
                                                                                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                                                                                  43 OKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29 LLEVISGERLP 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78 LLEVISGERLP 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                       QKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                              4.5%; Score 10; DB 6; 100.0%; Pred. No. 8.2;
                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.0%; Score 11; DB 6; 100.0%; Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                         EXPRESSION OF 10,000 OR MORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 5385;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 7201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
RESULT 27
US-10-363-616-413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: DROSOPHILA US-11-097-143-28275
                                                         RESULT 28
US-10-450-763-42286
                                                                                                                                   밁
                                                                                                                                                                                                                                                                                   US-10-363-616-413
                                                                                                                                                                                     Query Match
Best Local Similarity 100.0%;
Matches 9; Conservative (
Sequence 42286, Application US/10450763
Publication No. US20050196754A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 490
SEQ ID NO 413
LENGTH: 67
TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 413, Application US/10363616 Publication No. US20040044181A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 28275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 100.0%; Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Hyseq, Inc
TITLE OF INVENTION: NOVEL NUCLEIC ACIDS AND POLYPEPTIDES
FILE REFERENCE: 21272-113 (793)
CURRENT APPLICATION NUMBER: US/10/363,616
CURRENT FILING DATE: 2003-03-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: 60/175,693
PRIOR EPILING DATE: 2000-01-12
PRIOR APPLICATION NUMBER: 60/184,831
PRIOR FILING DATE: 2000-02-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 1999-11-12
PRIOR APPLICATION NUMBER: 60/173,383
PRIOR FILING DATE: 1999-12-28
                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 09/654,935 PRIOR FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/191,637 PRIOR FILING DATE: 2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/161,932 PRIOR FILING DATE: 1999-10-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/157,832
PRIOR FILING DATE: 1999-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 43008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 60/160,191 PRIOR FILING DATE: 1999-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/164,769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 5496
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            43 QKKTFTKWVN 52
                                                                                                                                   37
                                                                                                                                                                   42 VOKKTETKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OKKTETKWVN 159
                                                                                                                                   45
                                                                                                                                                                                                                             4.1%; Score 9; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 10; DB; Pred. No. 8. 0; Mismatches
                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                             DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 6;
                                                                                                                                                                                                                                            Length 67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 5496;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

APPLICANT: Hyseq, Inc TITLE OF INVENTION: NOVEL NUCLEIC ACIDS AND POLYPEPTIDES FILE REFERENCE: 790CLP3/US CURRENT APPLICATION NUMBER: US/10/450,763 CURRENT FILING DATE: 2003-06-11 PRIOR APPLICATION NUMBER: PCT/US01/08631 PRIOR FILING DATE: 2001-03-30

```
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules an
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53222)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 352183
                                                                                                                                                                                                       В
                                                                                                                             US-10-424-599-237993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-425-115-352183
                                                                     Sequence 237993, Application US/10424599 Publication No. US20040031072A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 352183, Application US/10425115 Publication No. US20040214272A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Custom
SEQ ID NO 42286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: (35)..(115)
OTHER INFORMATION: Calponin homology (CH) domain identified by PFam,
OTHER INFORMATION: name CH, E-value=0.07, PFam score of 4.1
-10-450-763-42286
                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Clone ID: MRT4577_84355C.1.pep
-10-425-115-352183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: La Rosa, Thomas J. APPLICANT: Kovalic, David K.
APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 09/649,167
PRIOR FILING DATE: 2000-08-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 60736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 09/540,217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Zea mays FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 123
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Actinin-type actin-binding domain proteins domain identified OTHER INFORMATION: by eMATRIX, accession number BL00019B, p-value=1.000e-16, raw OTHER INFORMATION: of 13:34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DRGANISM: Homo sapiens
                                                                                                                                                                                                                                                                            Local Similarity les 9; Conserv
                                                                                                                                                                                                                                         143 QQEEEERKR 151
                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VOKKTETKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (63) .. (86)
                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                       83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44
                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                              4.1%; Score 9; I
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.1*;
                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 9; D; Pred. No:
                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  );
2
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and Other Molecules Associated With
                                                                                                                                                                                                                                                                                                                 Length 123;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 117;
                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               accession
                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285884
SEQ ID NO 237993
LENGTH: 202
TYPE: PRT
ORGANISM: Glycine max
FEATURE:
FORTHR INFORMATION: Clone ID: PAT_MRT3847_56
                                                                                                                                                                                                                                                                                                RESULT 32
US-10-425-114-65298
                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-425-114-60052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-425-114-60052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-424-599-237993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 60052
LENGTH: 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 60052, Application US/10425114
Publication No. US20040034888A1
                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                      Sequence 65298, Application US/10425114
Publication No. US20040034888A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
APPLICANT: Kovalic, David K.
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21 (53313) B
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
                                                                                                                                                               APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Kovalic, Dav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53313)B
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Liu, Jingdong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 38-21(53223)B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Clone ID: LIB3637-254-C10_FLI.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
mes 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                   154 QQEEEERKR
                                                                                                                                                                                                                                                                                                                                                                                                                          143 QOEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   143 QQEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156 QQEEEERKR 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhou, Yihua
Kovalic, David K.
Screen, Steven E
Tabaska, Jack E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.1%; Score 9; 1
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID: PAT_MRT3847_56934C.1.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 9;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
APPLICANT: Gibson, Bradford W.

APPLICANT: Taylor, Steven W.

APPLICANT: Glenn, Gary M.

APPLICANT: Glenn, Gary M.

APPLICANT: Marnock, Dale B.

TITLE OF INVENTION: TARGETS FOR THERAPEUTIC INTERVENTION

TITLE OF INVENTION: IDENTIFIED IN THE MITOCHONDRIAL PROTEOME

FILE REFERENCE: 660088.465

CURRENT APPLICATION NUMBER: US/10/408,765A

CURRENT FILING DATE: 2003-04-04

NUMBER OF SEQ ID MOS: 3077

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID MO 731

LENGTH: 3433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: Clone ID: UC-ZMROTEOSINTE021B06_FLI.pep US-10-425-114-65298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-425-114-36959
                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-408-765A-731
                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Zhou, Yihuna APPLICANT: Zhou, Yihuna APPLICANT: Kovalic, David K. APPLICANT: Screen, Steven E APPLICANT: Gaska, Jack E APPLICANT: Cao, Yongwei TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21(53313)B CURRENT APPLICATION NUMBER: US/10/425,114 CURRENT FILING DATE: 2003-04-28 NUMBER OF SEQ ID NO36959

LENGTH: 240

LENGTH: 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 36959, Application US/10425114 Publication No. US20040034888A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 65298
LENGTH: 205
                                                                                                                                                                                                                                                                                                                                                                Sequence 731, Application US/10408765A Publication No. US20040101874A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
ORGANISM: Glycine max
FEATURE:
OTHER INFORMATION: Clone ID: LIB3170-019-F4_FLI.pep
3-10-425-114-36959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 4.1%; Score 9; DB 4; Best Local Similarity 100.0%; Pred. No. 4.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Liu, Jingdong APPLICANT: Zhou, Yihua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 73128
                                                                                                                                                                                                                                                                                            APPLICANT: Ghosh, Soumitra S.
APPLICANT: Fahy, Eoin D.
APPLICANT: Zhang, Bing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Zea mays subsp. mexicana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194 QQEEEERKR 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 QQEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157 QQEEEERKR 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143 QQEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.1%; Score 9; DB 4;
100.0%; Pred. No. 5.1;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: PRT; ORGANISM: Homo sapiens US-10-408-765A-731
                                      Query Match
Best Local Similarity
"---ches 9; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 36
US-10-756-149-5681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-408-765A-732
                                                                                                                            US-10-756-149-5681
                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/756,149
CURRENT FILING DATE: 2004-01-12
NUMBER OF SEQ ID NOS: 5818
SOFTWARE: PatentIn version 3.2
SEQ ID NO 5681
LENGTH: 3433
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                         Sequence 5681, Application US/10756149 Publication No. US20050181375A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 732, Application US/10408765A Publication No. US20040101874A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 4.1%; Score 9; DB of Best Local Similarity 100.0%; Pred. No. 50 Matches 9; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                     APPLICANT: Aziz, Natasha
APPLICANT: Ziotnik, Albert
TITLE OF INVENTION: NOVEL METHODS OF DIAGNOSIS OF METASTATIC CANCER, COMPOSITIONS AND
TITLE OF INVENTION: METHODS OF SCREENING FOR MODULATORS OF METASTATIC CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/10/408,765A
CURRENT FILING DATE: 2003-04-04
NUMBER OF SEQ ID NOS: 3077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Gibson, Bradford W.
APPLICANT: Taylor, Steven W.
APPLICANT: Taylor, Steven W.
APPLICANT: Warnock, Dale E.
TITLE OF INVENTION: TARGETS FOR THERAPEUTIC INTERVENTION
TITLE OF INVENTION: IDENTIFIED IN THE MITOCHONDRIAL PROTEOME
FILE REFERENCE: 660088.465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Ghosh, Soumitra S. APPLICANT: Fahy, Eoin D. APPLICANT: Zhang, Bing
                                                                                                                                                                                                                                                                                        FILE REFERENCE: file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                             ORGANISM: Homo Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 3433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.1%;
Local Similarity 100.0%;
nes 9; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32 VOKKTFTKW 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42 VQKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32
42 VOKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42 VOKKTFTKW 50
                                                      Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       40
                                                      4.1%; Score 9; DB 5;
100.0%; Pred. No. 50;
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 9; I
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
                                                      <u>.</u>
                                                                                         Length 3433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 3433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                          <u>0</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                          0
```

밁

32

San San S

```
RESULT 39
US-10-425-115-196724
; Sequence 196724, Application US/10425115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                             밁
                                                                                                                           ঠ
                                                                                                                                             Query Match
Best Local Similarity
Matches 8; Conserva
                                                                                                                                                                                                                                  ; OTHER INFORMATION: Clone ID: MRT4577_99631C.1.pep US-10-425-115-368921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Whiches 8; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-425-115-368921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-767-701-50379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Clone ID: LIB3480-003-P1-K1-F1.pep
US-10-767-701-50379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 50379, Application US/10767701 Publication No. US20040172684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 368921
LENGTH: 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 50379
LENGTH: 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 368921, Application US/10425115 Publication No. US20040214272A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof For Plant Improvement
FILE REFERENCE: 38-21(53535)B
CURRENT APPLICATION NUMBER: US/10/767,701
CURRENT FILING DATE: 2004-01-29
CURRENT FILING DATE: 2004-01-29
                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants FILS REFERENCE: 38-21(53222)B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Kovalic,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
ORGANISM: Sorghum bicolor
                                                                                                                                                                                                                                                                                                     NAME/KEY: unsure
                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                  LOCATION: (1)..(177)
DTHER INFORMATION: unsure at all Xaa locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               144 QEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                            93
                                                                                                                             83 SGERLPKP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QEEEERKR 25
                                                                                            SGERLPKP 100
                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     David K.
                                                                                                                                                                               3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.6%;
                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 8; Pred. No
                                                                                                                                                                                Score 8;
                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                                                                               Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 65;
                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۰,
                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
뭉
                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; OTHER INFORMATION: Clone ID: MRT4577_110996C.1.pep US-10-425-115-196724
                                                                                                                                   US-10-437-963-196932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-437-963-196932
                                                              Query Match
Best Local S
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT FILING DATE: 2003-0.
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 196724
LENGTH: 209
TYPE: PRT
                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 196932
LENGTH: 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 196932, Application US/10437963
Publication No. US20040123343A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Publication No.
                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21(53221)B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants FILE REFERENCE: 38-21(53222)B CURRENT APPLICATION NUMBER: US/10/425,115 CURRENT FILING DATE: 2003-04-28
                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: La Rosa, Thomas J. APPLICANT: Kovalic, David K.
                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                             OTHER INFORMATION: Clone ID: PAT_MRT4530_92739C.1.pep
                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: unsure
LOCATION: (1)..(209)
OTHER INFORMATION: unsure at all Xaa locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: La Rosa, Thomas J. APPLICANT: Kovalic, David K.
                                                                                                                                                                                   ORGANISM: Oryza sativa
                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Zea maye
                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity hes 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 TKVSEEAE 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160 TKVSEEAE 167
ROQEEEER 133
                                ROQEEEER 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhou, IIII
                                                                                                                                                                                                                                                                                                                                                                                                                                               Zhou,
                                                                                                                                                                                                                                                                                                                                                            Li, Ping
                                                                                                                                                                                                                                                                                                                                                                          Barbazuk, Brad
                                                                                                                                                                                                                                                                                                                                                                                            Boukharov, Andrey A.
                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US20040214272A1
                                                                                                                                                                                                                                                                                                                                                                                                                               Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yihua
                                                              3.6%; Score 8; DB
100.0%; Pred. No. 41
Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            k; Score 8; DB 4
k; Pred. No. 41;
0; Mismatches
                                                                               DB 4;
o. 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
). 41;
                                                                                               Length 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

RESULT 41 US-10-732-923-18430 Sequence 18430, Application US/10732923 Publication No. US20050108791A1

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Tatches 8; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Mus musculus US-10-732-923-18430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 42
US-10-437-963-138843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                US-10-128-714-3119
                                                                                                                                                                                                                                    RESULT 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-437-963-138843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Edgetton, Michael D
TITLE OF INVENTION: TRANSGENIC PLANTS WITH IMPROVED PHENOTYPES
FILE REFERENCE: 38-15 (52796)C
CURRENT APPLICATION NUMBER: US/10/732,923
CURRENT FILING DATE: 2003-12-10
PRIOR APPLICATION NUMBER: 10/310,154
PRIOR FILING DATE: 2002-12-04
VIMBER OF SEQ ID NOS: 24149
SEQ ID NO 18430
LENGTH: 234
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 138843
LENGTH: 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                        Sequence 3119, Application US/10128714 Publication No. US20030119013A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 138843, Application US/10437963 Publication No. US20040123343A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT: Jiang, Bo
APPLICANT: Hu, Wenqi
APPLICANT: Tishkoff, Daniel
APPLICANT: Zamudio, Carlos
APPLICANT: Zamudio, Carlos
APPLICANT: Eroshkin, Alexey M
APPLICANT: Lemieux, Sebastien M
APPLICANT: Lemieux, Sebastien M
APPLICANT: Identification of Essential Genes in Aspergillus fumigatus
TITLE OF INVENTION: Methods of Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21(53221)B CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE: OTHER INFORMATION: Clone ID: PAT_MRT4530_40194C.1.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190 QEEEERKR 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   144 QEEEERKR 151
                                                                                                                                                                                                                                                                                                                                141 RRQQEEEE 148
                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                                                      Similarity
8; Conserv
                                                                                                                                                                                                                                                                                              RROOEEEE 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Li, Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wu, Wei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Boukharov, Andrey A.
Barbazuk, Brad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.6%;
                                                                                                                                                                                                                                                                                                                                                                                        3.6%;
                                                                                                                                                                                                                                                                                                                                                                      Score 8; DB 4;
; Pred. No. 47;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 8; DB 5; Pred. No. 45; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                          Length 246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 234;
                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                      and
```

```
片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Aspergillus fumigatus US-10-128-714-3119
                                                                                             RESULT 45
US-10-425-115-242617
                                                                                                                                                                         문
                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-437-963-140721
                                                                                                                                                                                                                                                                                                                       ; OTHER INFORMATION: Clone ID: PAT_MRT4530_41894C.1.pep US-10-437-963-140721
Sequence 242617, Application US/10425115
Publication No. US20040214272A1
GENERAL INFORMATION:
APPLICANT: La ROSa, Thomas J.
APPLICANT: Kovalic, David K.
                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn version 3.1
SEQ ID NO 3119
                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 140721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 140721, Application US/10437963 Publication No. US20040123343A1
                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 60/295,890
PRIOR FILING DATE: 2001-06-05
PRIOR APPLICATION NUMBER: US 60/303,899
PRIOR FILING DATE: 2001-07-09
PRIOR APPLICATION NUMBER: US 60/316,362
PRIOR FILING DATE: 2001-08-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21 (53221)B CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/128,714
CURRENT FILING DATE: 2002-04-23
PRIOR APPLICATION NUMBER: US 60/285,697
PRIOR FILING DATE: 2001-04-23
PRIOR APPLICATION NUMBER: US 60/287,066
PRIOR FILING DATE: 2001-04-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 8603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 10182-018-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Oryza sativa FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 369.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity tes 8; Conserv
                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                    141 RRQQEEEE 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          258 EEERKRRP 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146 EEERKRRP 153
                                                                                                                                                                         156 RRQQEEEE 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cao, Yor
Wu, Wei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Li, Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boukharov, Andrey
Barbazuk, Brad
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                   3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.6%; Score 8; DB
100.0%; Pred. No. 64
ative 0; Mismatches
                                                                                                                                                                                                                                                 Score 8; DB 4; Pred. No. 66; 0; Mismatches
                                                                                                                                                                                                                                                   <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 4;
                                                                                                                                                                                                                                                                     DB 4;
                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                    Length 369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 358;
                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                     0
```

```
밁
                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         믕
                                                                                                                                                ; ORGANISM: Aspergillus fumigatus
US-10-128-714-8119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ) OTHER INFORMATION: Clone ID: MRT4577_152851C.1.pep US-10-425-115-242617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 100.
8; Conservative
                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 242617
LENGTH: 382
                                                                                                                                                                                                                        SEQ ID NO 8119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 8119, Application US/10128714 Publication No. US20030119013A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: US 60/285,697 PRIOR FILING DATE: 2001-04-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/128,714
CURRENT FILING DATE: 2002-04-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Eroshkin, Alexey M
APPLICANT: Lemieux, Sebastien M
TITLE OF INVENTION: Identification of Essential Genes in Aspergillus fumigatus and
TITLE OF INVENTION: Methods of Use
                                                                                                                                                                                                                                         SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 8603
                                                                                                                                                                                                                                                                                PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 369326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/425,115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PPLICANT: Jiang, Bo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: unsure
LOCATION: (1)..(382)
OTHER INFORMATION: unsure at all Xaa locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With ITLE OF INVENTION: Plants ILE REFERENCE: 38-21 (53222) B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                      ENGTH: 517
                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 60/287,066 FILING DATE: 2001-04-27
                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 60/316,362
                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 60/303,899
                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 60/295,890 FILING DATE: 2001-06-05
                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                146 EEERKRRP 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       303 TKVSEEAE 310
417 EEERKRRP 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160 TKVSEEAE 167
                                                                     Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zamudio, Carlos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tishkoff, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zhou, Yihua
                                                                     3.6%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10182-018-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yongwei
                                                                                                                                                                                                                                                                                                              2001-07-09
                                                                                                                                                                                                                                                                            2001-08-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.6%; Score 8;
100.0%; Pred. No.
                                                                       0
                                                                                        Score 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 382;
                                                                                                      Length 517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                     Indels
                                                                   ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>,,</u>
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

RESULT 47

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 48
US-11-097-143-16218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; TYPE: PRT ; ORGANISM: DROSOPHILA US-11-097-143-16161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-11-097-143-16161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Fast:
SEQ ID NO 16161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 8; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 16161, Application US/11097143 Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 16218, Application US/11097143
Publication No. US20050208558A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                         PRIOR APPLICATION NUMBER: 60/173,383
PRIOR FILING DATE: 1999-12-28
PRIOR APPLICATION NUMBER: 60/175,693
                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/157,832
PRIOR FILING DATE: 1999-10-05
PRIOR APPLICATION NUMBER: 60/160,191
PRIOR FILING DATE: 1999-10-19
                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/161,932 PRIOR FILING DATE: 1999-10-28
                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/11/097,143
CURRENT FILING DATE: 2005-04-04
                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: DETECTION KIT, SUCH AS NUCLEIC ACID
TITLE OF INVENTION: ARRAYS, FOR DETECTING EXPRESSION OF 10,000 OR MORE
TITLE OF INVENTION: DROSOPHILA GENES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/157,832 PRIOR FILING DATE: 1999-10-05
                                                                                                                  PRIOR APPLICATION NUMBER: 60/164,769
PRIOR FILING DATE: 1999-11-12
                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: CL000728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: 60/161,932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/160,191 PRIOR FILING DATE: 1999-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/11/097,143
CURRENT FILING DATE: 2005-04-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: DETECTION KIT, SUCH AS TITLE OF INVENTION: ARRAYS, FOR DETECTING TITLE OF INVENTION: DROSOPHILA GENES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Venter, J. Craig
APPLICANT: et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Venter, J. Craig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ILE REFERENCE: CL000728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENGTH: 547
                          FILING DATE: 2000-01-1;
APPLICATION NUMBER: 60/184,831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/184,831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 2000-01-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/175,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1999-12-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/173,383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1999-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 OKKTFTKW 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        43 OKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [CATION NUMBER: 60/164,769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATION NUMBER: 60/191,637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000-02-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1999-10-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.6%; Score 8;
00.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEIC ACID
EXPRESSION OF 10,000 OR MORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 547;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

PRIOR FILING DATE: 2000-03-23

```
APPLICANT: SHEN, YAN

APPLICANT: SHEN, YAN

TITLE OF INVENTION: SPECIFIC MARKERS FOR PANCRATIC CANCER

FILE REFERENCE: 21525

CURRENT APPLICATION NUMBER: US/10/733,969A

CURRENT FILING DATE: 2003-12-11

PRIOR APPLICATION NUMBER: EP 02028058.2

PRIOR FILING DATE: 2002-12-17

NUMBER OF SEQ ID NOS: 110

SOFTWARE: Patentin version 3.2

SEQ ID NO 5

LENGTH: 911

TYDE: DET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                            US-10-369-493-18546, Application US/10369493; Sequence 18546, Application US/10369493; Publication No. US20030233675A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-733-969A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 43008
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 16218
LENGTH: 690
TYPE: PRT
ORGANISM: DROSOPHILA
S-11-097-143-16218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 3.6%; Score 8; DB 6; Le Best Local Similarity 100.0%; Pred. No. 1.1e+02; Matches 8; Conservative 0; Mismatches 0;
APPLICANT: Cao, Yongwei
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Slater, Steven C.
APPLICANT: Goldman, Barry S.
APPLICANT: Goldman, Barry S.
APPLICANT: Chen, Xianfeng
TITLE OF INVENTION: PLANTS WITH IMPROVED PROTEINS IN PLANTS FOR PRODUCTION OF
TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES
FILE REFERENCE: 38-10(52052)B
FILE REFERENCE: 38-10(52052)B
CURRENT APPLICATION NUMBER: US/10/369,493
CURRENT FILING DATE: 2002-02-28
PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR PILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 47374
SEQ ID NO 18546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5, Application US/10733969A Publication No. US20040219572A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
OTHER INFORMATION: Alpha-actinin 4; Accession NO: 043707-10-733-969A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: CHEN, JIE
APPLICANT: HU, LIPING
APPLICANT: LIU, TONG HUA
APPLICANT: LU, ZHAO HUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180 EEEERKRR 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            145 EEEERKRR 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92 SGERLPKP 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83 SGERLPKP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.6%; Score 8; DB 5; Length 911; ilarity 100.0%; Pred. No. 1.4e+02; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Word-size-:-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Listing first 1000 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapop 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-695-994A-7
220
1 MELQRTSSISGPLSPAYTGQ.....QNYKNFNSRRTASDHSWSGM 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                March 4, 2006, 07:06:31; Search time 40 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            283416 seqs,
                                                                                                                                                                                                    PIR 80:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pir1:*
pir2:*
pir3:*
pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                            2326
41
                                                                                                                                                                                     101
214
385
964
1355
1825
1885
1885
3685
2396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2364
2128
2137
    230
292
461
511
602
686
874
3433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.7 (c) 1993 - 2006 Biocceleration Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96216763 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gapext 60.0
                                                                                                                                                                                                                                                                                                                                                                                                        SJHUB
JE0271
A46147
S21195
S29854
T29140
I65645
                         I49298
T15570
S28381
                                                                                  I39161
JE0233
I39160
I49290
C75120
                                                                                                                                                                                 S06461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (without alignments)
529.192 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1100
                                                      dystonin isoform 2
troponin-I - scall
dystonin isoform 1
dystonin - mouse (
hypothetical prote
dystonin isoform 2
                                                                                                                                                                                                                                                                                                 plectin isoform pl
actin-crosslinking
plectin isoform pl
hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                        beta spectrin, bet
spectrin beta chai
spectrin beta chai
spectrin beta chai
                                                                                                                                                                                                                     dystrophin, plectin - h
                   hypothetical prote utrophin - human
                                                                                                                                                                               kakapo gene protei
dystrophin, brain
                                                                                                                                                                                                                                                           actin binding actin binding
dystrophin, muscle
                                                                                                                                                                                                                                                                                                                                                                                   Duchenne muscular
                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical prote
Duchenne muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           spectrin beta chai
beta spectrin, bet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    beta-spectrin -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    spectrin beta-G
                                                                                                                                                                                                                       human
                                                                                                                                                                                                                                        ng prot
muscle
  904
911
1089
1190
1645
1846
2414
4063
4101
125
B49151
T52046
G82815
I50590
S44732
T17288
S05943
T19246
I50591
                                                                                                                                                                             C754766
C75435
C82960
C82960
C82960
C82960
C82984
C701935
C92984
C702984
C7029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             086155
0880157
082127
1735159
174368
0822147
0822147
0822147
0822147
0822147
0822147
0822147
082147
0822147
082147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
0822147
082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F69844
G97246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          I65646
S56905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A54277
T42993
T23630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F86242
FAHUA2
S02032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AB0957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T42047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T36663
```

glycophorin-bindin TonB-dependent rec fibroblast growth fibroblast growth potassium channel penicillin binding class I INCENP pro b0523.5 protein hypothetical prote gelation factor hypothetical prote class II INCENP pr probable fusA2 pro erythrocyte membra sensor histidine k 1-phosphatidylinos probable two-compo naringenin 3-dioxy probable mureinpep receptor interacti conserved hypothet flavanone 3-hydrox Machado-Joseph dis glycine betaine AB glycine betaine AB glycine betaine AB phosphoglycerate k probable serine/th hypothetical prote conserved hypothet conserved hypothet araC-type DNA-bind alpha-actinin 2 alpha-actinin 2 alpha-actinin 115
alpha-actinin, 115
alpha-actinin-4 troponin T - scall hypothetical prote naringenin 3-dioxy naringenin 3-dioxy hypothetical prote probable fusA2 pro ATP-dependent DNA DNA ligase - Therm guanosine-3',5'-bi hypothetical prote hypothetical prote RNA-export mediato transport protein
GumJ protein - Xa hypothetical prote hypothetical prote gamma-glutamyltran naringenin 3-dioxy naringenin 3-dioxy Duchenne muscular hypothetical prote glucose-1-phosphat phytoene dehydroge probable oxysterol phosphoglycerate translation releas chromosome segrega spectrin beta-H ch protein kinase, hypothetical prote hypothetical prote hypothetical prote hypothetical prote transcription adap dystrophin hypothetical prote hypothetical prote insulin receptor spectrin

172 173 174	171	169	167	165 166	164	163	161	160	159	158	157	155	154	153	152	151	1 4 6	148	147	146	145	143	142	141	140	139	110	136	135	134	132	131	130	128	127	126	105	123	122	121	120	118	117	116	115	114	112	111	110	108	107	106	105	103	
თთთ	. on o	. თ. ი	'nO	თ თ	o.	თ თ	<b>,</b> 0,	σ	o	σ (	א כ	<b>1</b> 0	6	6	σ (	ם עם	n 0	, o	6	o.	თ (	ם ע	n o	, O	σ.	თ ი	ם עם	non	6	σ,	ם מ	, o	σ (	עס ת	σ	σ,	7 '	7	7	7	<b>J</b> ~	<b>,</b> 7	7	7	7	۷,	2 7	7	7 '	٦ ر	7	7	7 -	7 7	
22.7	. 7	. 7	. <u>'</u> 1	. 7	. 7		. 7	. 7	. 7	7	7 :	1 ~	.7	. 7	7		, .	, '	. 7	.7	7:	٠.	ı .	· 'J	. 7	7	<b>,</b>	1 _1	7	7	٠, ١	1 7	7	ı '1	7	7	N K	่ง	'n	Ni	υĸ	) N	N	N		v	N	Ν	N	N	N	NI	N	s N	
134 2 134 2 134 2																																																							
2 E57233 2 C57233 2 JC4226																																																							
യദേദ	טי ס	<b>.</b>	<b>.</b>	<b>ದ</b> 'ದ	'n	r, a	יכל ו	<b>1</b>	<b>5</b> *	o (	ם מ		Ω	ס	<del></del> .	<.<	<b>1.</b> <	. <b>.</b>		₩.	₩.;	<b>7</b>	÷ 00	. 5	ıΩ.	<b>F</b> .	<b>9</b> 1.5	<b>7</b> .9	· F.	Ħ.	7 5	ر ا	Ω.	<b>3.</b> 9	<i>ਨ</i> ਾ.	<b>9</b> 7	ָּטִי ִּט	<b>5</b> .5	. Ω	e i	e :	· ·	: E	'رِ	<b>5</b> 3	<b>9.</b> 5	, m	22	<u> </u>	. 0	र्व भ	<del>ا</del>	, E	g vg	
complexin ] complexin ] synaphin -	ity-as	hypothetics	ytochrome	ypothetica ypothetica	onserved h	replication termin	-ORF-A pro	ypothetica	ypothetica	onserved h	onserved h	ryzacystat	ysteine pr	robable me	ntermediat	or protein	pr protein	pr protein	or protein	. subtilis	. subtilis	mothet ica	erum amyıo	pothetica .	lycerol ki	pothetica	/pochetica	pothetica	/pothetica	pothetica	mothetica	allikrein	onglutin d	TyA protein YER138	t-ligand	pothetica	lectin - r	pothetica	RB-bindin	canscripti	richohvali	sca procei	conventio	pothetica	otein B05	) IA-uiso/	20 protei	pha-7 int	tegrin al	conuclease	pothetica	AA0642 pr	mothetica	genome polyprote	
II - hum II - rat bovine	ociated	11 prote	P450 pr	il prote	ypothet	n termin	otein -	il prote	ιl prote	ypothet	woothet	111111	oteinas	mbrane	e filam	- huma	- numa	- huma	- huma	YlxR p	YlxRp	orote	olog A	l prote	nase (E	l prote	l prote	l prote	1 prote	1 prote	a tota	- mouse	elta-2	YER138	(altern	1 prote	at tou	1 prote	g prote	on coac	n - hum	n - yea	nal myo	1 prote	23.5 (1	similar	protein - hum	egrin -	pha cha	RexH [	ical prote	otein -	l prote	p.	
			_																_		_										_																								-
245 246 247	244	242	240	238	237	236	234	233	232		230	) K	227	226	225	224	2 6 6	221	220	219	218	217	216	214	213	212	211	209	208	207	206	2004	203	201	200	199	198	196	195	194	193	192	190	189	188	187	185	184	183	181	180	179	178	176 177	
თთთ	, o, o	n 01 (	ກ ወነ	თ თ	, o	σ α	n on	. თ	σ,	σ,	ο (	nσ	, 0,	6	6	σ (	nσ	ח ס	. თ	თ	σ.	თ (	ם ת	<b>n</b> on	. o	σ,	თ (	nσ	, o	σ	on 0	n On	6	თ თ	. 0	o.	ο (	ח ס	, o	თ	თ ი	ם ע	n 01	, O	σ,	თ (	ካ σ	, o	σ (	ח ס	n 01	o	σ,	on or	
2.7	2.7	221	3.7 7	2.7		2.7	3 N 1 7	2.7	2.7	2.7	2.7	J .	2.7	•			•	2 6	•	•	•													2.7			2.7	) N	2.7			) . 7												2 7	
229																																																							
2 S66342 2 G70073																																																							
ribor two-c	hypot	GTP-1	RNase	GTP COLLEG	prob	glyco	acy1.	acyl	adeny	DNA-c	hypot	1 1 000	Isoud	hypot	hypot	type	joard 19	a' -ph	delta	dCTP	hypot	hypot	hypot	t al lu	fms r	pheny	hypot	eqoza odku	proba	hypot	hypot	proba	hypot	manno	unkno	hypot	hypot	7 SOS	trans	trans	trans	estoo ood fr	PODOT 1	hypothet	congl	hypot	hypot F13 F	flage	hypot	hypot	hyporhet	hypot	hypot	hypothet	
ribonuclease two-componen	pothetical pro	GTP-binding	hetica	yclohy:	able transc	inin chain A7	-Carrier	-carrier	/late_k	lirecte	hetica	alin -	onteode	hetica	hetica	1 fimb	hetica		Large	deamin	hetica.	hetica	hetica.	The Cica	rotein	'lacryl:	hetical	ble tra	ble and	hetical	hetica	tta eld	hetical	mannose-binding le	m pro	hetical	heticai	508 ribosomal 1	ns-regulatory	s-regulatory	-regula	rved hypothet	÷F	hetical p	utin de	hetical	hetical	llar pi	hetical			hetical		hetical p	•
ent ee		† `	Aquif	0.4	· œ	go i	<b>⊸</b> ∺		μ.	Q.	$\mathbf{r}$	Ė	۰ ۰	μ	ب	H	۽ س	r⊦	, a	8	۲	,_	ې ر	י ק מ	· 5	5		֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	- #	. "	_	Z Z	_	쁐	٠.C	_	l pro	֓֞֟֜֟֝֟֜֟֟֝֟֓֓֟֟֓֓֓֟֟֓֓֓֓֓֟֟	. 2	17	7	∂ '	- 7	1 prot	<b>61</b> 5	_	- 0	. 2	1 prote	<b>-</b> F	_ B		_	1 prot	

:

$\begin{smallmatrix} 2&2&2&2&2&2&2&2&2&2&2&2&2&2&2&2&2&2&2&$	255 255 255 255 255 255 255 255 255
തതതതതതതതതതതതതതതതതതതതതതതതതതതതതതതതതതതത	<b>ೲೲೲೲೲೲೲ</b>
236 237 238 239 239 239 239 239 239 239 239 239 239	230 231 232 232 233 233 233 233 233 233 233
2 A9510 2 A9510 2 A9510 2 AP541 2 AP541 2 AP541 2 AP541 2 AP541 2 CR6490 2	
N95431 N95431 N93619 NB3619 NB3619 NB3619 NB3619 NB3619 NB44893 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S61925 S6192	B83879 A75260 G81026 B69392 T43754 WMBEHK D69630 F69178 A10981
hypothetical prote 26S proteasome 10T transcription regul US4 protein - huma heat shock protein glutathione S-tran grobable coatmer d hypothetical protein hypothetical protein hypothetical protein fampothetical protein fampothetical protein fampothetical protein probable urea/shor indole-3-glycerol probable urea/shor indole-3-glycerol probable urea/shor indole-3-glycerol protein fact transporter suprobable urea/shor indole-3-glycerol protein probable urea/shor indole-3-glycerol protein probable urea/shor indole-3-glycerol protein probable enoyl-(ac acetyl-CoA carboxy probable enoyl-(ac acetyl-CoA carboxy probable enoyl-(ac acetyl-CoA carboxy probable enoyl-(ac acetyl-CoA carboxy probable membrane transcription fact conserved hypothetical protein protein protein fact conserved hypothetical protein hypothetical protein hypothetical protein	hypothet hypothet inositol ABC trai ABC on hypothet UL3 prot menaquir conserve
hypothetical pro- 26S proteasome I transcription re- US4 proteasome I transcription re- US4 proteasome I transcription re- US4 proteasome I US4 proteasome I US4 proteasome S-tr- probable coatmer hypothetical pro- glutathione S-tr- ZK1236.7 protein Ipsin - Lactococ hypothetical pro- cyst wall protein [im- protein [im- protein [im- protein [im- hypothetical pro probable urea/sh indole-3-glycero probable molybde hypothetical pro probable molybde hypothetical pro probable molybde hypothetical pro probable local cranscri protein A5A483 dihydrodipicolin leader peptide hypothetical pro hypothetical pro probable transcri hypothetical pro probable probable molybde hypothetical pro probable propothetical pro probable propot	thetical thetical itol mon transpon thetical protein protein quinone erved h
hypothetical prote 26S proteasome IOT transcription regul WS4 protein - huma heat shock protein glutathione S-tran grobable coatmer d hypothetical protein - Lactococcu hypothetical protein - Lactococcu hypothetical protein - Lactococcu hypothetical protein protein protein - Lactococcu hypothetical protein glutathione S-trans ZK1236.7 protein - Lactococcu hypothetical protein glutathio grobable urea/shorindole-3-glycerol protein probable molybdenu hypothetical protein probable encyl-(ac acetyl-CoA carboxy probable transcrip protein prote	tical prote tical prote l monophosp sporter, A tical prote tein - huma none biosyn ed hypothet ed hypothet
	<del></del> ,
333 333 333 333 3333 3333 3333 3333 3333	322 322 322 322 322 328 328
331 331 333 333 333 333 333 333 333 333	
\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
00000000000000000000000000000000000000	66666666666666666666666666666666666666
31 31 31 31 31 31 31 31 31 31	6 2.7 288 2 6 2.7 289 2 6 2.7 290 2 6 2.7 291 2
31 32 32 33 34 35 36 37 38 39 44 41 41 42 44 44 44 44 44 44 44 44 44	6 2.7 288 2 6 2.7 289 2 6 2.7 290 2 6 2.7 291 2
31 31 31 31 31 31 31 31 31 31	6 2.7 288 2 6 2.7 289 2 6 2.7 290 2 6 2.7 291 2
31 31 31 31 31 31 31 31 31 31	6 2.7 288 2 6 2.7 289 2 6 2.7 290 2 6 2.7 291 2
31 6 2.7 291 2 \$55293 32 6 2.7 291 2 H70678 34 6 2.7 291 2 H70678 35 6 2.7 291 2 H70678 36 6 2.7 291 2 H70678 37 6 2.7 291 2 H70678 38 6 2.7 291 2 H70678 39 6 6 2.7 291 2 S20777 40 6 2.7 292 2 S20777 41 6 2.7 292 2 S20777 42 6 6 2.7 293 2 S20777 43 6 6 2.7 299 2 S20777 44 6 6 2.7 299 2 S20777 44 6 6 2.7 300 2 F90727 45 6 2.7 300 2 F90723 46 6 2.7 300 2 F90723 47 6 6 2.7 300 2 F90723 48 6 6 2.7 300 2 F90723 49 6 6 2.7 300 2 F90723 50 6 2.7 300 2 F90723 51 6 2.7 300 2 F90723 52 6 2.7 300 2 F90723 53 6 2.7 300 2 F90723 54 6 6 2.7 300 2 F90723 55 6 6 2.7 300 2 F90723 56 6 2.7 300 2 F90723 57 6 6 2.7 300 2 F90723 58 6 2.7 300 2 F90723 59 6 6 2.7 300 2 F90723 50 6 6 2.7 300 2 F90723 50 6 6 2.7 300 2 F90723 50 6 6 2.7 300 2 F90723 50 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	6 2.7 287 2 T05338 6 2.7 288 2 F64448 6 2.7 288 2 S58219 6 2.7 288 2 H88109 6 2.7 289 2 T03395 6 2.7 290 2 J33854 6 2.7 290 1 JH0489 6 2.7 291 1 JH0489 6 2.7 291 2 S55291
31 6 2.7 291 2 S55293 32 6 2.7 291 2 H70678 34 6 2.7 291 2 H70678 35 6 2.7 291 2 H70678 36 6 2.7 291 2 H70678 37 6 2.7 291 2 H70678 38 6 2.7 291 2 H70678 39 6 6 2.7 291 2 S20777 40 6 2.7 292 2 S20777 41 6 2.7 292 2 S20777 42 6 2.7 292 2 S20777 43 6 2.7 292 2 S20777 44 6 6 2.7 292 2 S20777 44 6 6 2.7 300 2 H70523 44 6 6 2.7 300 2 H70523 45 6 2.7 300 2 H70523 46 6 2.7 300 2 H70523 47 6 2.7 300 2 H70523 48 6 2.7 300 2 H70523 49 6 2.7 300 2 H70523 50 6 2.7 300 2 H70523 51 6 2.7 300 2 H70523 52 6 2.7 300 2 H70523 53 6 2.7 300 2 H70523 54 6 2.7 300 2 H70523 55 6 2.7 300 2 H70523 56 6 2.7 300 2 H70523 57 6 6 2.7 300 2 H70523 58 6 2.7 30 2 H70523 59 6 6 2.7 30 2 H70523 50 6 2.7 30 2 H70523 50 6 2.7 30 2 S70523 50 6 2 S70523 50 6 2 S70523 50 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6 2.7 287 2 T05338 6 2.7 288 2 F64448 6 2.7 288 2 S58219 6 2.7 288 2 H88109 6 2.7 289 2 T03395 6 2.7 290 2 J33854 6 2.7 290 1 JH0489 6 2.7 291 1 JH0489 6 2.7 291 2 S55291
31 6 2.7 291 2 SS5292 32 6 2.7 291 2 H756293 33 6 2.7 291 2 H756293 34 6 6 2.7 291 2 H756293 35 6 6 2.7 291 2 H756293 36 6 2.7 291 2 SA11308 37 6 2.7 291 2 SA11308 38 6 2.7 291 2 SA2777 40 6 2.7 291 2 SA2777 41 6 2.7 298 2 SA3268 42 6 2.7 301 2 B85087 43 6 2.7 301 2 B85087 44 6 2.7 301 2 B85087 44 6 2.7 302 2 F75733 49 6 2.7 303 2 T723140 44 6 2.7 303 2 T723140 45 6 2.7 307 2 F75735 55 6 2.7 307 2 F75735 56 6 2.7 310 2 F75735 57 6 2.7 310 2 F75735 58 6 2.7 310 2 F75735 58 6 2.7 310 2 F75735 59 6 2.7 310 2 F75735 59 6 6 2.7 310 2 F75735 50 6 6 2.7 310 2 F75735 50 6 6 2.7 310 2 F75735 50 6 6 2.7 310 2 F75735 51 6	6 2.7 287 2 T05338 6 2.7 288 2 F64448 6 2.7 288 2 S58219 6 2.7 288 2 H88109 6 2.7 289 2 T03395 6 2.7 290 2 J33854 6 2.7 290 1 JH0489 6 2.7 291 1 JH0489 6 2.7 291 2 S55291

444 0000 40000 0000	თთ	თთ	on (	n 01	<b>σ</b> (	ው ወ	n 01	თ	σ,	n o	n 01	o	σ.	D) O	n 01	. თ	. 0	6	σ,	on o	n o	, on	σ,	თ თ	n on	<b>,</b> 0	თი	n 01	σ,	on o	ח סח	ō	თ 0	n on	6	on o	n 01	σ,	on o	n 01	σ (	ח סי	. 0	σ.	on o	<b>,</b> თ	σ,	<b>o</b> c	<b>თ</b>	n 01	۰ ۵	6
2022	.7	. 7	. 7	7 .	. 7	7 -	.,	. 7	. 7	7 -	. 7	. 7	7	7 -	ı .	.7	.7	. 7	7	7 -	٠,	7	.7	7 .	1 .1	, 7	<b>.</b> .	, ₁	7	7	1 7	7	7	1 7	7	7 -	٦ د	7	7 -	7	7	7 7	7	7	7 -	ı ~ı	7	7 -	7 \	1 7	7	7
3865																																																				
E83725 T02640 S37691																																																				
hypothetical prote hypothetical prote ran GTPase activat	hypothetical degradative	hypothetical probable XAP	probable meml	hypothetical	hypothetical	hypothetical pro	hypothetical	probable two	CDC37 homolog	germin - piq	ABC transporte	hypothetical	spinal cord-c	hypothetical	hydroxyprolii	glucosyl tran	conserved hyp	hypothetical	probable glyd	nucleolar snF	olycosyltrans polygalacture	cbiD protein	cyst wall pro	CDPqlucose 4.	probable regu	hypothetical prote	hypothetical	fructose-bisp	probable suga	macrophage in	hypothetical	prephenate de	hypothetical	probable dide	phosphoribosy	qlucose-1-pho	sulfate trans	hypothetical	TIF34 protein	probable vana	hypothetical	apore photopreserviews	hypothetical	etical	F	probable trans	legumin storag	umin stora	dinotransf	able inte	polymeras	glucose
prote prote	prote nzyme	prote	rane	prote	prote	xOse-	prote	compo	g - hu	Comit	for, A	prote	rive	rote	G-R1C	iera	othet	prote	)sylt	Id di		Syn	ein	i-deh	ator	rote	rote	nosph	. upt	Lamm	rote	ydro	rote	1-gi	tra	phat	ort ·	rote	- ye	ate	rote	duct	prote	prote	prote	crip	e pr	o i	erase	שנים	III	pime
538 539	535 536	533 534	532	530	529	528	526	525	524	523 8	л U U U	520	519	518	517 5	515	514	513	512	511	510	508	507	506	505 4	503	502	500	499	498	496 497	495	494	493	491	490	4 8 8	487	486	484	483	482 1	480	479	478	476	475	474	473	472	470	469
n on on	თთ	თთ	σ,	ש מ	σ	თ თ	n 0	0	σ	σ (	ησ	0	σ	σ.	ח ס	n 0	n 01	<b>ο</b>	6	σ (	on o	ח סי	, O	σ.	o 0	n 01	σ,	თ თ	, o	σ,	თ თ	n 01	o.	თ თ	n 01	σ (	<b>ም</b> ው	σ,	σ (	ח ס	9	o o	n 01	9	σ (	<b>π</b> σ	0	o.	თ (	თ თ	ካ ወነ	, σ
0 2 2 2 2 2 2 3 2 3 4 3 4 4 4 4 4 4 4 4 4																																		2.7			2.7			2.7			3 7			2.7				2.7		
445 447 447																																																				
2 T31581 2 A32284 2 AF2295 2 F95122																																																				
5	ַסָיַסָי	ָּטִי <b>טִי</b>	·F.	ور م	Ĕ.	ğ.:	7.5	: <u>.</u>	<b>''</b> 'D	<u> </u>	CT 9	QV.	g	ָּבַלָּ	5 8	3 -	1.0	? ≤	Ď	ָּק.	D :	7 2	į,	14	ָּבָל בַּי	t)	hy	hy hy	ַנְסָי	a	ţ,	3.5	11	un .	ığ.	'ny	D. III	1 8	hq	מיים	th th	r d	<b>1</b>	γį	ųď	臣2	T E	hу	ch.	אַל	- C	Į.
hypothetic chromogram hypothetic protein ki	phosphogluconate d	pudsou	ypothe	yporne lpha-a	ypothe	BB1C t	A POCINE	ypothe	robabl	itamin	translati	OV protection prot	rehalo	probable	hypothet	יים ביים ביים ביים ביים ביים ביים ביים	PH PTC	15amin	bzie DNA-binding p	-450 mo:	rotein		ypothet	robable	lphenyl	tyrosine-tRNA 11ga	pothet:	pothet	rotein-	ngerve	reonin	pochec	T16N11.7 protein	aknown protein F2	probable racemase	hypothetical	probable membrane		phosphopent	polymerase-associ	reonin	phosphoprotein ph	monitum cranspore	pothet	phosphoprotein pho	prote	nknown prote	hypothetical	alcone	hypothetical	mtegrase - p	robable G-

. .

5555 5555 5556 5556 5566 5566 5566 556	. 55 55 55 55 55 55 55 55 55 55 55 55 55
, , , , , , , , , , , , , , , , , , ,	,
551332906664244466666666666666666666666666666	44444444444444444444444444444444444444
2 C34829 2 C34829 2 C34829 2 C365666 2 C365666 2 T40697 2 I62463 3 T34679 2 G71231 2 T211231 2 T211643 2 T22785 2 T34679 2 T211649 2 T211649 1 T216641 1 S73920 1 S73920 1 S73921 2 T34679 2 T744946 2 D86182 2 B766829 2 F71648 2 C68754 2 D86182 2 T744946 2 D86182 2 T744946 2 D86182 2 C774319 2 C774319 2 C774319 2 T77449665 2 A56665 2 A56665 2 A566665 2 T774319 2 T77419667 2 T7741967 2 T774197 2 T774497 2 T774197	
ramscription term transcription term transcription term probable tata bind hypothetical prote glycerol-3-phospha hypothetical prote glycerol-3-phospha hypothetical prote probable membrane splicing factor ho octamer-binding prote probable membrane sprotein F13M7.11 [ hypothetical prote probable membrane amidase homolog GG transcription fact TyA protein - yeas protein G3 - soyb aldehyde dehydroge flagellar hook-ass glycinin G3 precur legumin B4 precurs transforming prote glycinin G3 prote protein C50H11.15 B. subtilis Yuck protein C50H11.15 B. subtilis Yuck protein C50H11.15 B. subtilis Prote hypothetical prote conserved hypothet protein C50H11.15 B. subtilis Prote hypothetical prote probable colicin-1 gene 2 protein - p probable gamma-glu monooxygenase homo type II secretion hypothetical prote IF SSP 9502 - hum glutamate tRNA lig monooxygenase-rela exopolyphosphatase guanosine-5'-triph pyridine nucleotid 2-oxoacid-ferredox GMP synthase [impo glycinin G5 precur	chorismate mutase sensor histidine k probable transcrip hypothetical prote thus proteinal proteinal proteinal proteinal proteinal proteinal proteinarate hydratase hypothetical protein conserved hypothet himarate hypothet
$\begin{array}{c} 6668881098765743221 \\ \end{array}$	614 615 617 618 619 620 620 621 623 623
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	518 518 521 521 522 523 523 527
2 G95279 2 S48087 2 S48087 2 S48087 2 S48087 2 T39903 2 S19729 2 T40151 2 B847759 2 T15943 2 S720846 1 JC5225 1 G69652 2 G69652 2 F740700 2 S52477 2 F747084	
probable ABC trans t-complex-type mol signal-reansducing protein C27A12.3 [ serine-rich protei xylan 1,4-beta-xy] hypothetical prote histidine-trun 1ig hypothetical prote t-complex-type mol hypothetical prote t-complex-type mol hypothetical prote et-complex-type mol hypothetical prote dsRNA-activated pr endopeptidase La ( transcription regu period protein (cl glycinin G4 precu cell invasion prot glycinin G4 precu cell invasion prote glycinin G4 precu cell invasion prote glycinin F64 precu cell invasion prote glycinin A5A4B3 ch hypothetical prote grobable acylamino maturase-related decar hypothetical prote probable acylamino maturase-related in globulin-15, GLB1S lamin C - munas globulin-15, GLB1S lamin C - muna globulin-16, GLB1S lamin C - muna globulin-17, GLB1S lamin C - muna globulin-18, GLB1S lamin C - muna	transcription glutamate-cys spermidine/pu 2',3'-cyclic- probable matr glucose-6-pho glucose-6-pho hypothetical lycopene epsi alpha-N-acety catalase (EC catalase (EC catalase (EC catalase (EC

893 894 895 896 897 898 899 900 900 900 900	876 877 878 879 880 880 882 883 884 883 885 886 887 889 899	855 855 855 865 866 866 866 866 872 872	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
<b>თ თ თ თ თ თ თ თ თ თ თ თ</b>	. M M M M M M M M M M M M M M M M M M M	<b>,</b> , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
901 904 905 907 910 911 911 922 9224	872 877 8877 883 883 892 892 893 893 900 900 900 900	88333333333333333333333333333333333333	8006 8006 8006 8006 8006 8006 8006 8006
			F888 F888 F888 F888 F888 F888 F888 F88
P90641 M10069 T001475 T35748 T35748 G69599 A48443 A58423 A58188 F83257 T726147 T733732	AC2134 S491538 S49157 S57653 S59126 S59126 S59126 T728828 T728828 T728828 T728828 T72813 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T726143 T72614 T726143 T72614 T72614 T72614 T72614 T72614 T72614 T72614 T72614 T72614	H95029 C97901 C42702 S54563 B96538 B96538 I50428 B96537 G71357 G71357 G71350 G712503 G712503 G712503 G712503 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G71350 G7	F82899 E90523 E90523 E97831 E9
pregress pregress property pro	Ferri Coor envel brevi probs hypot hypot alph probs 55.11 55.21 prepi prepi	Leuce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-euce 1-e	hypo leuc leuc vali vali hypo DNA leuc hypo leuc hypo hypo hypo hypo hypo hypo hypo hypo
preprotein t preprotein t probable dis DNA polymera aconitate hy alpha-actini brevican pre protein C18H hypothetical hypothetical hypothetical probable alpy probable exc	ferrichrome-i CooC protein envelope prot brevican prec probable memb hypothetical related to tr phosphatidyli hypothetical alpha-actinin probable alph 55.11 protein alpha-actinin preprotein tr preprotein tr	leucyl-trnA sy leucyl-trnA sy leucine-trNA le hypothetical p hypothetical p ypothetical p transforming g protein transp cation-transport transforming g transforming g hypothetical p probable phosp transforming g yropothetical p ypothetical p ypothable kines 3',5'-cyclic-g probable kines alpha-actinin lipoxygenase ( DNA mismatch r	theti theti theti theti theti theti theti ine-t ine-t ine-t ine-t ine-t theti theti theti theti
preprotein translo preprotein translo probable disease I probable disease I aconitate hydratas alpha-actinin - Ca brevican precursor protein C18H9.3 [i hypothetical prote hypothetical prote probable apy chain probable apy chain probable excinucle	ron ein ein ein ein ein ein ein ein ein ei	e de la marca de la company de	whetical prote yl-tRNA synthe yl-tRNA synthe yl-tRNA synthe yl-tRNA synthe place ne-tRNA ligase ne-tRNA ligase topolisomerase topolisomerase thetical prote yl-tRNA synthe trNA ligase thetical prote yl-tRNA synthe ine-tRNA ligas inne-tRNA ligas thetical prote beta-tRNA ligas thetical prote thetical prote thetical prote thetical prote ine-tRNA ligas plasmic nitrat protein gamma lensin complex
E S C C S C C S C C C C C C C C C C C C		the countries of the co	המלמלת מה המלמלת המלמלה המנה בל המלח המלח המלח המלח המלח המלח המלח המל
			• 3
			s.*
967 967 968 969 970 971 972 973 973 974 975	949 9550 9550 9550 9553 9553 9553 9553 955	9929 9310 9310 9310 9310 9310 9310 9310 931	. 907 907 908 910 911 911 914 915 917 917 919 920 921 922 922 923 924 925 926
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	7 108		7 925 7 925 7 925 7 936 7 951 7 952 7 952 7 966 7 966 7 972 7 973 7 973 7 1002
000000000000000	N N N N N N N N H N N N N N N N N		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
T43527 T30608 A40853 A40853 C35815 C35827 C35827 C75229 T14154 T17089 A35815	T13173 S542516 S542516 S58147 T20117 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R314250 R31450 R31450 R31450 R31450 R31450 R31450 R31450 R31450 R	S44621 S44621 11599 11599 11599 11599 11599 115998 1730986 1730986 1730986 1730986 1730986 1730986 1730986 1730879 1730879	T38948 F75622 D70204492 T148837 T130017 T30017 T30017 T30017 T30017 T30017 T30017 T30017 H40023 S29069 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S10023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1023 S1
÷		•	
sp8 protein - fiss proteophosphoglyca potassium channel myosin heavy chain myosin heavy chain period clock prote probable membrane mannosylphosphoryl meiotic recombinat serine/threonine phomeodomain-intera myosin heavy chain myosin heavy chain	RNA-directed DNA physothetical coile phosphorylase kina protein kinase - f hypothetical prote phosphorylase kina proteical proteical proteical proteical proteical proteintegrin alpha-7 chypothetical proteintegrin alph	C50C3.2 protein - conserved hypothet period protein - C hypothetical prote inositol-1,4 5-tri period protein - C major acidic nucle myosin I beta - hu myosin I heavy cha hypothetical prote serine proteinase sucrose-phosphate conserved hypothet hypothetical prote	hypothetical prote hypothetical prote excinuclease ABC c protein kinase hom hypothetical prote hypothetical prote hypothetical prote hypothetical prote excinuclease ABC, probable leus protinositol polyphosp leucine-tRNA 11gas MTRLO protein - ye probable leusyl trake excinuclease ABC c hypothetical protein - ye probable leusyl trake protein protein protein protein T6D23 (i protein T6D23.3 (i protein T6D23.3 (i deep orange protei

```
spectrin beta-G chain - human
N;Alternate names: beta-spectrin general isoform, beta G-spectrin
C;Species: Homo sapiens (man)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 09-Jul-2004
C;Accession: A44159
R;Hu, R.J.; Watanabe, M.; Bennett, V.
J. Biol. Chem. 267, 18715-18722, 1992
A;Title: Characterization of human brain cDNA encoding the general isoform <
A;Reference number: A44159; MUID:92406787; PMID:1527002
A;Accession: A44159
A;Accession: A44159
A;Accession: A44159
A;Residues: 1-364 <HUI>A;Residues: 1-364 <HUI>A;Cross-references: UNIPROT:Q01082; UNIPARC:UPI000004EC67; GB:M96803; NID:gi
                                                                                                                                                                                           A;Gene: GDB:SPTBN1
A;Gross-references: GDB:120386; OMIM:182790
A;Cross-references: GDB:120386; OMIM:182790
A;Gross-references: GDB:120386; OMIM:182790
C;Superfamily: spectrin beta-G chain; alpha-actinin actin-binding domain homology;
C;Keywords: actin binding; cytoskeleton; duplication; heterodimer; membrane protein
F;53-271/Domain: alpha-actinin actin-binding domain homology <ACT>
F;501-412/Domain: spectrin/dystrophin repeat homology <SP1>
F;1697-1803/Domain: spectrin/dystrophin repeat homology <SP2>
F;1697-2305/Domain: pleckstrin repeat homology <PLK>
                    RESULT 2
I52577
C;Species: Mu
                                                                밁
                                                                                   S
                                                                                                        밁
                                                                                                                           S
                                                                                                                                                                                                                                                                                                     ;Note: sequence extracted from NCBI backbone
                                                                                                                                                                                                                                                                                                                         ;Molecule type: mRNA
;Residues: 1-2364 <HUl>
;Cross-references: UNIPROT:Q01082; UNIPARC:UP1000004EC67; GB:M96803; NID:g338442; PIDN
                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                Experimental source: brain
                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus
                                                                                                        50
                                                                                                                             37
                                                                                                                                                   97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aaaaaaaaaaaaaaaaaaa
                                                                                                                    DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRWR
                                                                                    IHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRLT 133
                                                                                                         DEREAVQKKTFTKWVNSHLARVSCRITDLYTDLRDGRMLIKLLEVLSGERLPKPTKGRMR
вр.
           mouse
                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                        44.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184505
T06692
S60179
A48467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T04018
T19508
S52500
T40578
B71413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B45219
T47141
AI2155
T51314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A26588
A26427
T15316
I49705
S52734
                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C84848
                                                                                                                                                              Score 97;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALIGNMENTS
                                                                                                                                                   Mismatches
                                                                                                                                                              DB 1;
2e-89;
                                                                                                                                                                                                                                                                                                       (NCBIP:113399)
                                                                                                                                                   0;
                                                                                                                                                                       Length 2364;
                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                          general isoform of beta-spect
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-methyl-D-asparta
hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          glutamate receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hypothetical prot
calcium-dependent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hypothetical prote hypothetical prote oxysterol-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WD-repeat protein probable CO-induce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                period
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           period
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypothetical prote
                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clock
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Clock
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chloropla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         prote
                                                                                                                             96
                                                                                                                                                                                                                                                 pleck
```

```
C;Species: Homo sapiens (man)
C;Date: 30-Jun-1992 #sequence revision 30-Jun-1992 #text change 09-Jul-2004
C;Accession: A37064; A39346; JT0554; A28777; A39885; B23659; B42872; B27016; A32514
C;Accession: A37064; A39346; JT0554; A28777; A39885; B23659; B42872; B27016; A32514
C;Accession: J.C.; Chang, J.G.; Tse, W.T.; Scarpa, A.L.; Marchesi, V.T.; Forget, B.
J. Biol. Chem. 265, 11827-11832, 1990
A;Title: Full-length sequence of the cDNA for human erythroid beta-spectrin.
A;Reference number: A37064; MUID:90307707; PMID:2195026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R.Bloom, M.L.; Birkenmeter, v.v., ----
R.Bloom, M.L.; Birkenmeter, v.v., ----
R.Bloom 82, 2906-2914, 1993
Blood 82, 2906-2914, 1993
Blood 82, 2906-2914, 1993
A.Title: Complete nucleotide sequence of the murine erythroid
                                                                                                                                                                                                                                                                                                                                                                                                                   A;Molecule type: mRNA
A;Residues: 928-957,'NY',960-982,'L',984-1030,'D',1032-1755 < YOO>
A;Cross-references: UNIPARC:UPI0000173DB6; GB:M57948
R;Winkelmann, J.C.; Leto, T.L.; Watkins, P.C.; Eddy, R.; Shows, T.B.; Linnenbach, A.J.;
Blood 72, 328-334, 1988
A;Title: Molecular cloning of the cDNA for human erythrocyte beta-spectrin.
A;Reference number: A90733; MUID:88269838; PMID:3390609
A;Accession: A28777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: mRNA
A;Residues: 1-2137 < WIN>
A;Residues: 1-2137 < WIN>
A;Residues: 1-2137 < WIN>
A;Residues: 1-2137 < WIN>
A;Residues: GB:J05500
A;Cross-references: UNIPROT:P11277; UNIPARC:UPI0000135DB5; GB:J05500
A;Note: the authors translated the codon GAG for residue 596 as Arg, CAC for residue 801
A;Note: the authors translated the codon GAG for residue 596 as Arg, CAC for residue 801
A;Note: the authors translated the codon GAG for residue 701
A; Forget, B. Garpa, A.; Bolvin, P.; Delaunay, J.; Forget, B
J. Biol. Chem. 266, 15154-15159, 1991
J. Biol. Chem. 266, 15154-15159, 1991
A;Title: A splice site mutation of the beta-spectrin gene causing exon skipping in hered
A;Reference number: A39346; MUID:91332035; PMID:1840591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change
C;Accession: I52577
                                                                                   A;Molecule type: mRNA
A;Residues: 1334-1373,'R',1375-1432;1909-2137 <WI2>
A;Residues: 1334-1373,'R',1375-1432;1909-2137 <WI2>
A;Cross-references: UNIPARC:UPI000016A607; UNIPARC:UPI000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI00016A608; GB:J05500
A;Cross-references: UNIPARC:UPI000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI0000016A608; GB:J05500
A;Cross-references: UNIPARC:UPI000016A608; GB:J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Yoon, S.H.; Kentros, C.G.; Prchal, J.T.
Gene 91, 297-302, 1990
A;Title: Identification of an unusual deletion within homologous repeats of A;Reference number: JT0554; MUID:91007291; PMID:1976574
A;Accession: JT0554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Keywords: actin binding C; Keywords: actin binding domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Introns: 418/3; 1742/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: Spnb-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: UNIPARC:UPI0000029884; GB:S66283; NID:g440899; PIDN:AAB28600.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-2128 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Accession: A39346
A;Molecule type: DNA
A;Residues: 2002-2137 <GAL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;1787-1892/Domain: spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;53-271/Domain: alpha-actinin actin-binding domain homology <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: UNIPARC:UPI0000173DB5; GB:J05500 R;Yoon, S.H.; Kentros, C.G.; Prchal, J.T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spectrin beta chain - human
A,Title: Isolation and characterization of cDNA clones for human erythrocyte beta-spectra,Reference number: A39885; MUID:88041127; PMID:3478706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95 MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 38; DB; Pred. No. 1.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat homology <SPH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.2e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           beta-spectrin cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  homology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human reticu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                               1374 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spectri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       в
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      t ± 8
```

```
beta spectrin, beta_SpIII_sigmal - rat C;Species: Rattus norvegicus (Norway ra C;Date: 05-Feb-1999 #sequence_revision
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Winkelmann, J.C.; (Costa, F.F.; Linzie, B.L.; Forget, B.G.
J. Biol. Chem. 265, 20449-20454, 1990
A;Title: Beta spectrin in human skeletal muscle. Tissue-specific differential A:Reference number: A23659; MUID:91056094; PMID:2243099
                                                                                                                                                                                                         JE0271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: UNIPARC:UP1000016B05C; GB:M18054; NID:g338333; A;Experimental source: reticulocyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Speicher, D.W.; Marchesi, V.T.
Nature 311, 177-180, 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Biol. Chem. 267, 14775-14782, 1992
A; Title: Properties of human red cell spectrin heterodimer (side-to-side) assembly
A; Reference number: A42872; MUID:92340516; PMID:1634521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: UNIPARC:UPI0000173DB7; GB:M37885
R;Speicher, D.W.; Weglarz, L.; DeSilva, T.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: protein
A;Residues: 292-324,'X',326-329,'Y',331-332;434-532;718-734,'V',736-773,'X',775-777;103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;953-1059/Domain: spectrin/dystrophin repeat homology <SP07>;1060-1166/Domain: spectrin/dystrophin repeat homology <SP08>;1167-1272/Domain: spectrin/dystrophin repeat homology *SF10>;1273-1377/Domain: spectrin/dystrophin repeat homology <SF10>;1273-1377/Domain: spectrin/dystrophin repeat homology <SF11>;1378-1476/Domain: spectrin/dystrophin repeat homology <SF11>;1378-1476/Domain: spectrin/dystrophin repeat homology <SF12>;1583-1689/Domain: spectrin/dystrophin repeat homology <SF13>;1689-1795/Domain: spectrin/dystrophin repeat homology <SF15>;1902-2007/Domain: spectrin/dystrophin repeat homology <SF15>;1902-2007/Domain: spectrin/dystrophin repeat homology <SF15>;1902-2007/Domain: spectrin/dystrophin repeat homology <SF17>;2008-2118/Domain: spectrin/dystrophin repeat homology <SF17>
                                  Accession: JE0271
Sakaguchi, G.; Or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Map position: 14q23-14q23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: UNIPARC:UPI0000173DBB; UNIPARC:UPI0000173DBC; UNIPARC:UPI0000173DBD;
Note: the purified protein had a blocked amino end
Comment: Spectrin is a major structural component of the erythrocyte membrane cytoske;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               994-1997 <SPE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  742-846/Domain: spectrin/dystrophin repeat homology <SP05>
847-952/Domain: spectrin/dystrophin repeat homology <SP06>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;301-412/Domain: spectrin/dystrophin repeat;421-526/Domain: spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Title: Erythrocyte spectrin is comprised of many homologous triple helical segments.;Reference number: A93341; MUID:84295638; PMID:6472478;Accession: B27016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reference number: A23659; MUID:91056094; Accession: B23659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Molecule type: protein;Residues: 47-56;293-302;1837-1846 <SP2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Superfamily: spectrin beta chain; alpha-actinin actin-binding domain homology; spectri Keywords: actin binding; cytoskeleton; duplication; erythrocyte; heterodimer; membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene: GDB:SPTB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    636-741/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53-271/Domain: alpha-actinin actin-binding domain homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cross-references: UNIPARC:UPI0000173DB8; UNIPARC:UPI0000173DB9; UNIPARC:UPI0000173DBA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Accession: B42872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ross-references: GDB:119602; OMIM:182870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-635/Domain:
                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                         95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2105-2137 <WI3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1209-1482 <PRC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                       MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 145
                                                                                                                                                                                                                                                                                                                                                                                                     MRIHCLENVDKALQFLKEQRVHLENMGSHDIVDGNHRL 132
   Orita, S.; Naito,
Res. Commun. 248,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    spectrin/dystrophin repeat homology <SP03>
spectrin/dystrophin repeat homology <SP04>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      spectrin/dystrophin repeat homology <SP02>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 38;
Pred. No.
A.; Maeda, M.;
, 846-851, 1998
                                                                                                                                    rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                 05-Feb-1999 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     homology <SP01>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.2e-
                               Igarashi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of the erythrocyte membrane cytoske
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                      Ξ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN: AAA60572.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         processing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PID
```

```
R;Byers, T.J.; Husain-Chishti, A.; Dubreuil, R.R.; Branton, D.; J. Cell Biol. 109, 1633-1641, 1989
A;Title: Sequence similarity of the amino-terminal domain of Drc A;Reference number: A33657; MUID:90009037; PMID:2677025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Byers, T.J.; Brandin, E.; Lue, R.A.; Winograd, E.; Branton, D. Proc. Natl. Acad. Sci. U.S.A. 89, 6187-6191, 1992
A;Title: The complete sequence of Drosophila beta-spectrin reveals A;Reference number: A46147; MUID:92335263; PMID:1631106
A;Accession: A46147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Experimental source: brain c;Comment: This protein is specially expressed in brain, where it C;Superfamily: spectrin beta-G chain; alpha-actinin actin-binding F;1-275/Domain: alpha-actinin actin-binding domain homology <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Title: A novel brain-specific isoform of beta spectrin: Isolation and A;Reference number: JE0271; MUID:98369639; PMID:9704016
A;Accession: JE0271
A;Moleculé type: mRNA
A;Residues: 1-2388 <SAK>
A;Cross-references: UNIPROT:Q9QWN8; UNIPARC:UPI0000167AB0; DDBJ:AB00134
문
                                                 Ś
                                                                                                                                                                                                                               F;297-400/Domain: spectrin/dystrophin repeat homology <SP1>F;417-522/Domain: spectrin/dystrophin repeat homology <SP2>F;1698-1804/Domain: spectrin/dystrophin repeat homology <SP2
F;1298-1804/Domain: spectrin/dystrophin repeat homology <SP2
F;2146-2257/Domain: pleckstrin repeat homology <PLK>
                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: FlyBase:FBgn0003471
C;Superfamily: spectrin beta-G chain; alpha-actinin actin-binding domain homology; pleck C;Keywords: actin binding; cyroskeleton
E;49-267/Domain: alpha-actinin actin-binding domain homology <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
A; Residues: 1-800 <BY2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: A33657; A; Accession: A33657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; MoLecule type: DNA
A; Residues: 1-2291 <BYE>
A; Residues: 1-2291 <BYE>
A; Cross-references: UNIPROT: Q00963; UNIPARC: UPI000016BB0B; GB: M9228B; NID: g157019;
A; Note: sequence extracted from NCBI backbone (NCBIP: 108607)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Drosophila melanogaster
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999
C;Accession: A46147; A33657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F;304-415/Domain: spectrin/dystrophin repeat homology <SPH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           spectrin beta chain - fruit fly (Drosophila melanogaster)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A46147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: FlyBase:beta-Spec
                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: UNIPARC:UPI0000173DC2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                103
84
                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87 LPKPTKGRMRIHCLENVDKALQFLKEQ 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 12.3%; So
l Similarity 100.0%; F
27; Conservative 0;
                                                                                                                                               Similarity
LIKLLEVLSGERLPKPTKG 102
                                                    LIKLLEVLSGERLPKPTKG 93
                                                                                                                      Conservative
                                                                                                                                           8.6%; Score 19; DB 1; Lo
100.0%; Pred. No. 2.4e-10;
                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 27; DB 2; L; Pred. No. 1.9e-18;
                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GB:M92288
                                                                                                                                                                                                                                                               homology <SP3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #text_change
                                                                                                                                                                       Length 2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                where it was enriched in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goldstein, L.S.B
                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domain homology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         supra-motifs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              interaction
                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         comprisi
```

spectrin beta chain - pig C;Species: Sus scrofa domestica (domestic C;Date: 19-Mar-1997 #sequence_revision 19-

ic pig) 19-Mar-1997

#text_change 31-Dec-2004

Derancourt, J.;

Pradel, L.A

```
A;Title: Actin and neurofilament binding domain of brain spectrin beta subunit A;Reference number: S21195; MUID:92209538; PMID:1555607 A;Accession: S21195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Accession: S29854
A;Molecule type: mRNA
A;Residues: 1-707 <TAN>
A;Residues: 1-707 <TAN>
A;Cross-references: UNIPROT:Q28297; UNIPARC:UPI0000087662; EMBL:L02897; NID:g164035; PII
C;Superfamily: spectrin beta-G chain; alpha-actinin actin-binding domain homology; pleck
C;Keywords: actin binding; cytoskeleton; heterodimer; membrane protein
F;40-146/Domain: spectrin/dystrophin repeat homology <SP1>
F;253-358/Domain: spectrin/dystrophin repeat homology <SP2>
F;539-648/Domain: pleckstrin repeat homology <PLK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Tan, S.; Shankar, V.; Gilmore, M.S.; Sachdev, G.P. Biochim. Biophys. Acta 1172, 217-219, 1993
A;Title: Nucleotide sequence of a cDNA for canine beta-spectrin A;Reference number: $29854; MUID:93176817; PMID:8439565
A;Accession: $29854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N;Alternate names: beta-spectrin
C;Species: Canis lupus familiari
C;Date: 30-Sep-1993 #sequence_re
C;Accession: S29854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: UNIPROT:Q9TRS2; UNIPARC:UPI000017768F
C;Superfamily: alpha-actinin actin-binding domain homology; spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: protein
A; Residues: 1-30 < FRA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary
                                                                                                                                                            A;Molecule type: DNA
A;Residues: 1-2326 <PAU>
A;Cross-references: UNIPARC:UPI000003588F; EMBL:U64854;
A;Experimental source: strain Bristol N2; clone K11C4
                                                                                                                                                                                                                                                                                      R;Pauley, A.; Gattung, S. submitted to the EMBL Data Library, July 1996 submitted to the EMBL Data Library, July 1996 A;Peferrice number: Z20577
                                                                                                                                                                                                                                                                                                                                                                                 hypothetical protein K11C4.3 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #t.C;Accession: T29140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                     A;Accession: T29140
A;Status: preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            spectrin beta chain - dog (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;Species: Canis lupus familiaris (dog)
;Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 09-Jul-2004
;Accession: S29854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                               Map position: 5; Introns: 105/1; 131/3;
                                                                                                                           Gene: CESP:K11C4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Query Match
Best Local
                                                             Superfamily: spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J. Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
les 17; Conserv
  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141 RROQEEEERKRRPPSP 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37 DEREAVOKKTFTKWVNS 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               205, 85-91, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                         ; 155/3; 449/3; 2075/1; 2140/3; beta-G chain; alpha-actinin act
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.7%;
6.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 16;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 17;
Pred. No.
Score 14;
Pred. No.
                                                                                                                                                                                                                                                         from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                       15-Oct-1999 #text_change
                                                                                                                                                                                                                                                         GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; L.
3. 8.7e-08;
0;
DB 2; L
2.8e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.4e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 707
                      Length
                                                             actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                    2182/1; 2232/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                           PIDN: AAB18316.1; GSPDB: GN00023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            reveals high evolutional
                                                                                                                                                                                                                                                                                                                                                                                                             21-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>
                                                                domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                    2309/1
                                                             homology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat
                                                             plec
```

plectin isoform C;Species: Mus m

m plec 1 |

[imported]

mouse

RESULT

F59404

```
R;Chelly, J.; Gilgenkrantz, H.; Lambert, M.; Hamard, G.; Chafey, P.; Recan, Cell 63, 1239-1248, 1990
A;Title: Effect of dystrophin gene deletions on mRNA levels and processing i A;Reference number: I52806; MUID:91084852; PMID:2261642
A;Accession: I65645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
I65645
                                                                                                                                                                                                                                                                                                  C;Date: 04-Oct-1996 #sequence_revision 04-Oct-1996 #text_change C;Accession: I65644
R;Chelly, J.; Gilgenkrantz, H.; Lambert, M.; Hamard, G.; Chafey, Cell 63, 1239-1248, 1990
Cell 63, 1239-1248, 1990
A;Title: Effect of dystrophin gene deletions on mRNA levels and j A;Reference number: I52806; MUID:91084852; PMID:2261642
A;Accession: I65644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GDB:119850; OMIM:310200
A;Map position: Xp21.2-Xp21.2
C;Superfamily: dystrophin; alpha-actinin actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
I65644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Superfamily: dystro
C; Keywords: muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: GDB:DMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: UNIPARC:UPI000011F81C; GB:M63074; NID:g181589;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-41 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession: I65645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species:
C;Date: 04-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Duchenne muscular dystrophy protein - human (fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                               A;Map position: Xp21.2-Xp21.2
C;Superfamily: dystrophin; alpha-actinin actin-binding domain homology;
C;Keywords: muscular dystrophy
                                                                                                                                                                                                                   A; Cross-references:
C; Genetics:
밁
                            ş
                                                                                                                                                                                A;Gene: GDB:DMD
A;Cross-references: GDB:119850; OMIM:310200
                                                                                                                                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-101 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                      Duchenne muscular dystrophy protein - human (fragment) C;Species: Homo sapiens (man)
                                                                                                                                                                                                                                                                                  A; Status: preliminary; translated from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Species: Homo sapiens (man)
;Date: 04-Oct-1996 #sequence_revision 04-Oct-1996 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                              Query Match
Best Local 9
                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42
16
                          42 VOKKTETKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VOKKTETKWVNSHL 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VOKKTETKWVNSHL
VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                Conservative
                                                                                                                                                                                                                                 UNIPROT:Q14172; UNIPARC:UPI000006E255; GB:M63073; NID:g181587; PIDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dystrophy
                                                             100.0%; **
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52
26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                Score 11; DB; Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                        GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2; L
                                                                                                  DB 2;
                                                                                    0.0017;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>
                                                                                                  Length 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domain homology;
                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-Aug-1999
                                                                                                                                                                                                                                                                                                                                       processing in
                                                                                                                                                                                                                                                                                                                                                                                                           09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                          P.; Recan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIDN: AAA52314.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gape
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              spectrin/dystrop
                                                                                                                                                    spectrin/dystrop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ín
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D.,
                                                                                                                                                                                                                                                                                                                                                                          D.; Katz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Duchenne
                                                                                                                                                                                                                                                                                                                                            Duchenne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Katz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PID:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .0
```

```
plectin isoform plec 1,2alpha [imported] - mouse C;Species: Mus musculius (house mouse) C;Date: 01-Feb-2002 #sequence_revision 01-Feb-2002 #c;Accession: D59404 R;Fuchs, P.; Zorer, M.; Rezniczek, G.A.; Spazierer, Hum. Mol. Genet. 8, 2461-2472, 1999 A;Title: Unusual 5' transcript complexity of plectir A;Reference number: D59404 MUID:20025755, PMID:1058, PA;Ccession: D59404
                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                     A;Map position: lpter-lqter
C;Superfamily: plectin; alpha-actinin actin-binding domain homology; ribosomal protein
F;94-308/Domain: alpha-actinin actin-binding domain homology <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R; Fuchs, P.; Zorer,
Hum. Mol. Genet. 8,
A; Title: Unusual 5'
A;Status:
                                                                                                                                                                                              RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: UNIPARC:UPI000016C902; GB:AAF18069; NID:g6578737; PIDN:AAF18069.1 C;Superfamily: rat ribosomal protein S10; ribosomal protein S10 homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-214 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: A; Accession: F59404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     actin-crosslinking
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GDB:1323194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Gene: GDB:ACF7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 97-309 <BYW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FBBS Lett. 368, 500-504, 1995
A;Title: Novel actin crosslinker superfamily member identified
A;Reference number: S66291; MUID:95361933; PMID:7635207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Byers, T.J.; Beggs, A.H.; McNally, E.M.; Kunkel, L.M. submitted to the EMBL Data Library, June 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Cross-reterences:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: UNIPROT:013696; UNIPARC:UPI0000070CF4; Byers, T.J.; Beggs, A.H.; McNally, E.M.; Kunkel, L.M. 388 Lett. 368, 500-504, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Reference number: S66292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Species: Homo sapiens (man)
Date: 22-Nov-1996 #sequence_revision 22-Nov-1996 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description: Novel actin crosslinker superfamily member identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Date: 01-Feb-2002
                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: S66291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Accession: S66292; S66291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Accession: F59404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186 VQKKTFTKWVN 196
                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                      42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-385 <BYE>
                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                     VQKKTFTKWVN 106
                                                                                                                                                                                                                                                                                        VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                          Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein ACF7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2461-2472, 1999
transcript complexity of plectin isoforms:
F59404; MUID:20025755; PMID:10556294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M.; Rezniczek,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #sequence_revision 01-Feb-2002 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UNIPARC: UPI0000177DE4; EMBL: L40626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.0%;
                                                                                                                                                                                                                                                                                                                                                                5.0%;
                                                 complexity of plectin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ı
                                                                                                                                                                                                                                                                                                                                               Score 11; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G.A.; Spazierer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                             No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (fragment)
                                PMID: 10556294
                                                                                                                                                                                                                                                                                                                                           DB 2; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
0.0034;
                                                                                                                                                                                                                                                                                                                            0
                                                                                                                    #text_change 01-Feb-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥,
                                                                                   D.; Oehler, S.; Castanon,
                                                                                                                                                                                                                                                                                                                                                              Length 385;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.; Oehler,
                                                   isoforms:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL:L40626; NID:g845507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γď
                                               novel tissue-specific exc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-May-2002
                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          two step degenerate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Castanon,
                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by a two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tissue-specific
                                                                                                                                                                                                                                                                                                                          ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                   M.J.; Hau
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          м.с.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   degen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ex
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                             RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
```

```
RESULT 14
T22552
                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Harris, B.
submitted to the EMBL Data Library, March 1997
A;Reference number: Z19580
A;Accession: T22552
                                                                                                                                                        A; Map position:
                                                                                                                                                                             A;Gene: CESP:ZK1151.1
                                                                                                                                                                                                              A; Experimental source:
                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-1355 <WI2>
                                                                                                                                                                                                                                                                                                    submitted to the EMBL Data Library, March A;Reference number: Z20408
A;Accession: T27703
                                                                                                                                                                                                                                                                                                                                                        R; Harris,
                                                                                                                                                                                                                                                                                                                                                                        A; Experimental source: clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-964 <STO>
                                                                                                                                                                                                                                                                                A;Status: preliminary; translated from
                                                                                                                                                                                                                                                                                                                                                                                                               A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hypothetical protein ZK1151.1 - Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: UNIPARC:UPI0000021F4E; GB:AAF18068; NID:g6578735; PIDN:AAF18068.1
                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: DNA
                                                                                                                                                                                                            ;Cross-references: UNIPARC:UPI000017BCEF; EMBL:Z93398; PIDN:CAB07724.1; GSPDB:GN00019;
;Experimental source: clone ZK1151
                                                                                                                                                                                                                                                                                                                                                                                         ;Residues: 1-1355 <WIL>
;Cross-references: UNIPARC:UPI000017BCEF; EMBL:292788;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Species: Caenorhabditis elegans;
Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 29-Oct-1999;Accession: T22552; T27703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                     Matches
                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity nes 11; Conserv
                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
79
                                                                                                                                      94/3; 124/3; 150/3; 209/3; 248/3; 311/3;
                                 42 VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42 VOKKTFTKWVN
                                                                     l Similarity
 VOKKTETKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VQKKTFTKWVN
                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                  5.0%;
89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                    Score 11;
Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 11; DB 2;
Pred. No. 0.014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                    GB/EMBL/DDBJ
                                                                                    DB 2;
0.019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                        424/3;
                                                                                                   Length 1355,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 964;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                         PIDN:CAB07214.1; GSPDB:GN00019;
                                                                                                                                        734/2;
                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                      934/2; 1104/3;
                                                                Gaps
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                        1167/3;
```

```
A;Map position: 4
C;Superfamily: plectin; a
C;Keywords: actin binding
                                                                                                                                                                                                                                                                                                                                    actin binding protein ACF7, neural isoform 1 - C;Species: Mus musculus (house mouse) C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2C;Accession: T42725
                                                                                                                                                  A; Cross-references:
                                                                                                                                                                   A;Residues: 1-1825
                                                                                                                                                                                    A; Molecule type: mRNA
                                                                                                                                                                                                        A;Status: preliminary; translated
                                                                                                                                                                                                                              A; Accession: T42725
                                                                                                                                                                                                                                             Genomics 38, 19-29, 1996
A;Title: Cloning and characterization of mouse ACF7,
A;Reference number: Z20900; MUID:97124842; PMID:8954
                                                                                                                                                                                                                                                                                                              R; Bernier, G.; Mathieu, M.; De Repentigny, Y.; Vidal, S.M.; Kothary,
                                                                                                                                                                                                                                                                                                                                  C; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                           T42725
                                                                                                                            Genetics
    Query Match
                                                                                                                                             UNIPARC: UPI000016D118; EMBL: U67203; NID: g1675221; PID: g1675222;
                                                          alpha-actinin actin-binding
  5.0%;
                                                                                                                                                                                                          from
  Score
                                                                                                                                                                                                          GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                    11-Jan-2000 #text_change
  11;
                                                                                                                                                                                                                                               ouse ACF7, a novel PMID:8954775
  멂
                                                                                                                                                                                                                                                                                                                                                                                               mouse (fragment)
2
Length 1825;
                                                               domain
                                                          homology;
                                                                                                                                                                                                                                                                       member of the
                                                                                                                                                                                                                                                                                                                                                        03-Nov-2000
                                                               ribosomal
                                                                                                                                                                                                                                                                     dystonin
                                                             protein
```

PIDN

subf.

```
S
                                                                                                                                                   A;Residues: 1132, P;,134-622,'I',624-783,'G',785-1196,'F',1198-1376,'N',1378-1468,'Q',1 A;Cross-references: UNIPARC:UPI00016A83D; EMBL:X14298; NID:g30845; PION:CAA32479.1; PII A;Note: this sequence was submitted to the EMBL Data Library, February 1989 R;Noenig, M.; Hoffman, E.P.; Bertelson, C.J.; Monaco, A.P.; Feener, C.; Kunkel, L.M. Cell 50, 509-517, 1987 A;Fitle: Complete cloning of the Duchenne muscular dystrophy (DMD) cDNA and preliminary A;Reference number: A90897; MUID:87273512; PMID:3607877 A;Accession: A27162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: Cloning and characterization of mouse ACF7, a novel member A;Reference number: Z20900; MUID:97124842; PMID:8954775 A;Accession: T30847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Bernier, G.; Mathieu, M.; De Repentigny, Genomics 38, 19-29, 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Residues: 1-3685 <KOB>
A;Residues: 1-3685 <KOB>
A;Cross-references: UNIPARC:Q14205; UNIPARC:UPI0000074045; GB:M18533; NID:g181856; A;Cross-references: UNIPARC:Q14205; UNIPARC:UPI0000074045; GB:M18533; NID:g181856; R;Rosenthal, A.; Speer, A.; Billwitz, H.; Cross, G.S.; Forrest, S.M.; Davies, K.E. Nucleic Acids Res. 17, 5391, 1989
A;Title: Two human CDNA molecules coding for the Duchenne muscular dystrophy (DMD)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cell 53, 219-228, 1988
A;Title: The complete sequence of dystrophin predicts a A;Reference number: A27605; MUID:88194521; PMID:3282674
A;Accession: A27605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type:
A; Residues: 1-368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dystrophin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Residues: 1-1885 <BER>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Cross-references: UNIPARC:UPI0000173E6B; GB:M18533
R;Cross, G.S.; Speer, A.; Rosenthal, A.; Forrest, S.M.; Smith, EMBO J. 6, 3277-3283, 1987
A;Title: Deletions of fetal and adult muscle cDNA in Duchenne
                                                                                                         A; Molecule type: mRNA
A; Residues: 1-497 < KO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Species: Mus musculus (house mouse)
;Date: 22-Oct-1999 #sequence_revision 22-Oct-1999 #text_change 03-Nov-2000;Accession: T30847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Map position:
;Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local
                                                                                                                                                                                                                                                                                                                                                                                                     Status: nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                Accession: S07710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Date: 19-Nov-1988 #sequence revision 27-Jun-1994 #text change 31-Dec-2004
Accession: A27605; S07710; A27162; S05291; A40134; S06051; S10346; S02243
Koenig, M.; Monaco, A.P.; Kunkel, L.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Reference number: S07710; MUID:89345106; PMID:2668885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Species:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (man)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42 VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               muscle - human
names: Duchenne muscular dystrophy protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein ACF7, neural isoform 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VOKKTETKWVN 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VQKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           plectin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UNIPARC: UPI000016D119; EMBL: U67204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alpha-actinin actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 11;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 0.
, Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Y.; Vidal, S.M.; Kothary,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2; Length 1885; 0.026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.025;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             domain homology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NID:g1675223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rod-shaped
                                                       Smith,
     and
                                                    T.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
        Becker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cytoskeletal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S02243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ribosomal protein
                                                          Edwards,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PID:g1675224; PID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the
        muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dystonin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S02242;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
        dystrd
                                                          Flint
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Accession: S02244
A;Status: preliminary; translation not shown
A;Nolecule type: DNA
A;Residues: 2147-2204 <CH3>
A;Cross-references: UNIPARC:UPI000016A837; EMBL:X13048;
A;Accession: S02109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 2098-2146 < CH2>
A; Cross-references: UNIPARC: UPI00000722B7; EMBL: X13046;
     A;Molecule type: DNA
A;Residues: 'SGGHSWTIHCSLIYRLPLTLI';218-277 <HEI>
A;Residues: 'SGGHSWTIHCSLIYRLPLTLI';218-277 <HEI>
A;Cross-references: UNIPARC:UPI00000708D2; UNIPARC:UPI0000173E70; EMBL:X06293;
A;Note: sequence N-terminal of residue 218 correspond to a putative exon
R;Roberts, R.G.; Coffey, A.J.; Bobrow, M.; Bentley, D.R.
                                                                                                                                  R;Heilig; R.; Lemaire, C.; Mandel, J.L. Nucleic Acids Res. 15, 9129-9142, 1930. Aprille: A 230kb cosmid walk in the Duchenne muscular dystrophy A;Reference number: S09071; MUID:88067745; PMID:2825128 A;Accession: S09071
                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: UNIPARC:UPI000016A838; EMBL:X13047; NID:g30831; PIDN R;Ginjaar, I.H.B.; van Paassen, M.H.M.B.; den Dunnen, J.J.T.; van Ommen, submitted to the EMBL Data Library, March 1992
A;Description: Sequence of Duchenne muscular dystrophy gene exon 60, loca
                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 2980-2995, 'K', 2997-3028 <GIN>
A; Cross-references: UNIPARC UDIO000173E6F;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
A; Residues: 2305-2365, 'K' < CH4>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: S02242
                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: S23736
A; Accession: S23736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Status: preliminary; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Status: preliminary; translation not
                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary
```

shown

NID: g30827;

PIDN: CAA31452.1;

PID

BID

NID: 930833;

PIDN: CAA31454.1;

PID

PIDN:CAA31453.1; mmen, G.G.J.B.

located directly

EMBL: Z11860

gene:

detection

Ç,

9

ဝ္ပ

EMBL: YOU

```
A;ACCUBBACTOR A;ACCUBBACTOR A;MOIECULE type: DNA
A;MOIECULE type: A80 <SPE>
A;Residues: 2438-2480 <SPE>
A;Cross-references: UNIPARC: UPI0000173E6E; EMBL:X51934
A;Cross-references: UNIPARC: UPI0000173E6E; EMBL:X51934
A;Cross-references: US.; Gibbs, R.A.; Ranier, J.E.; Nguyen, P.N.; Ct
R;Chamberlain, U.S.; Gibbs, R.A.; Ranier, J.E.; Nguyen, P.N.; Ct
R;Chamberlain, J.S.; Gibbs, R.A.; 1156, 1989
Nucleic Acids Res. 16, 11141-11156, 1988
Nucleic Acids Res. 16, 11141-1156, 1988
Nucleic Acids Res. 16, 1141-1156, 1988
Nucleic Acids 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Blonden, L.A.J.; den Dunnen, J.T.; van Paassen, H.M.B. Nucleic Acids Res. 17, 5611-5621, 199. A;Title: High resolution deletion breakpoint mapping in A;Feference number: S06051; MUID:89345155; PMID:2569720 A;Accession: S06051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Speer, A.; Billwitz, H.; Huth, A.; Coutelle, C. submitted to the EMBL Data Library, February 1990 A;Reference number: S10346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Title: Conservation of the Duchenne muscular dystrophy A;Reference number: A40134; MUID:88018015; PMID:3659917 A;Accession: A40134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A, Note: 475-Ile and 529-Glu were also R; Hoffman, E.P.; Monaco, A.P.; Feener,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Reference number: S01263; MUID:88111512; PMID:3428261
A;Accession: S05291
A;Molecule type: DNA
A;Residues: 665-722 <CHA>
A;Cross-references: UNIPARC:UPI0000001040; EMBL:X13045; NID:g30825; PIDN:CAA31451.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: S10346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: UNIPARC:UPI000016A837; EMB
R;Speer, A.; Billwitz, H.; Huth, A.; Coutelle,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 2147-2204 <BLO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: UNIPARC:UPI0000173E6D; GB:M18533 R;Blonden, L.A.J.; den Dunnen, J.T.; van Paassen, H.M.B.; Wapenaar,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 491-1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 238, 347-350, 1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: mRNA
A;Residues: 404-556,'T',558-610,'K',612-622,'I',624-664,'M',665-783,'G',785-1137,'PN'
A;Cross-references: UNIPARC:UPI0000173E6C; EMBL:X06178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Status: translation not shown
                                                                                                                                                             A; Status: preliminary; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <HOF>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A.P.; Feener, C.C.; Kunkel, L.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL:X15495; NID:g30829; PIDN:CAA33518
lle, C.; England, S.; Love, D.; Davies,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                       P.N.; Caskey,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                       locus via
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        whole cosmid hyb
                                                                                                                                                                                                                                                                                                                                                       multiplex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Grootscholten,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                K.E.
```

```
F;1047-1154/Domain: spectrin/dystrophin repeat homology <SP07>
F;1156-1263/Domain: spectrin/dystrophin repeat homology <SP08>
F;1156-1267/Domain: spectrin/dystrophin repeat homology <SP08>
F;1372-1477/Domain: spectrin/dystrophin repeat homology <SP10>
F;1479-1568/Domain: spectrin/dystrophin repeat homology <SP10>
F;1479-1568/Domain: spectrin/dystrophin repeat homology *Hstatus F;1570-1676/Domain: spectrin/dystrophin repeat homology <SP12>
F;1678-1782/Domain: spectrin/dystrophin repeat homology <SP13>
F;1784-1875/Domain: spectrin/dystrophin repeat homology <SP13>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: mRNA;
A;Residues: 'MED',12-3;3377-3408 <FEE>
A;Residues: 'MED',12-3;3377-3408 <FEE>
C;Comment: Dystrophin is proposed to play a role in anchoring the cytoskeleton to C;Comment: Defects in dystrophin are responsible for the Duchenne/Becker muscular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Ehrenpreis, J.; Hillers, M.; Junkes, B.; Pfordt, M.; Schwinger, E.; Vosberg, H.P. Genomics 10, 551-557, 1991
A;Title: Analysis of a dystrophin gene deletion by amplification of mRNA isolated from A;Reference number: I54166; MUID:91365360; PMID:1889805
A;Accession: I54166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Reference number: A;Accession: I54186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: DNA
A;Residues: 1776-1913 <RE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genomics 13, 942-950, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Roberts, R.G.; Coffey, A.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 984-1411 <RE3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;Residues: 2980-3685 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;Accession: I68509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :Note: the list of introns is incomplete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cross-references: UNIPARC:UPI000011E804; GB:S54699; NID:g235303; PIDN:AAB19754.1; Feener, C.A.; Koenig, M.; Kunkel, L.M. ature 338, 509-511, 1989
                                                                                                                                                                                                                              ;718-828/Domain: spectrin/dystrophin repeat homology <SP04>;836-934/Domain: spectrin/dystrophin repeat homology <SP05>;938-1045/Domain: spectrin/dystrophin repeat homology <SP06>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Map position: Xp21.2-Xp21.2;
Introns: 11/1; 31/3; 62/3; 88/3; 119/3; 177/2; 217/1; 277/3; 320/3; 383/3; 444/2; 494;
3055/1; 3075/2; 3096/1; 3121/1; 3188/2; 3217/1; 3269/3; 3325/2; 3362/3; 3408/2; 3421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Title: Alternative splicing of human dys;Reference number: S03902; MUID:89181947;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title: Determination of the exon structure of the distal protion of the dystrophin; Reference number: I54175; MUID:92372062; PMID:1505985; Accession: I54175
                                                                                                                                                                                                                                                                                                                                                   :448-556/Domain:
:558-667/Domain:
                                                                                                                                                                                                                                                                                                                      668-717/Region:
                                                                                                                                                                                                                                                                                                                                                                                                    338-447/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                               253-327/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Superfamily: alpha-actinin actin-binding domain homology; spectrin/dystrophin re
Keywords: actin binding; alternative splicing; calmodulin binding; cytoskeleton;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cross-references: UNIPARC:UPI0000070539; Roberts, R.G.; Coffey, A.J.; Bobrow, M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Residues: 2850-2979 < ROB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cross-references: GDB:119850; OMIM:310200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Status: nucleic acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Status: nucleic acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cross-references: UNIPARC:UPI000006E836;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cross-references: UNIPARC:UPI000007017A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: S03902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Accession: I68510
                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-233/Domain: alpha-actinin actin-binding domain homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Exon structure of nce number: I54186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2250-2254 <RE4>
                                                                                                                                                                                                                                                                                                                      spectrin/dystrophin repeat
hinge
                                                                                                                                                                                                                                                                                                                                                                       spectrin/dystrophin repeat homology <SP01>
spectrin/dystrophin repeat homology <SP02>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UNIPARC:UPI000016A860;
illers, M.; Junkes, B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the human dystrophin gene.
; MUID:93300536; PMID:8314593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    not shown; translation not shown; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      not shown; translation not shown; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               not shown; translation not shown; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dystrophin mRNA generates
947; PMID:2648158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GB:M86903; NID:g181881; PIDN:AAA35779.1; Pfordt, M.; Schwinger, E.; Vosberg, H.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GB:L05646; NID:g181896; PIDN:AAA74507.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GB:L05649;
Bentley, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GB:L05642; NID:g181892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translation
                                                                                                                                                                                                                                                                                                                                                homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NID:g181899;
                                                                                                                                                                                                                                                                                                                                                   <SP03:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               <ACT>
        atypical
                                                                                       atypical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          isoforms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIDN: AAA74506.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIDN:AAA74508.1; PID
           <SP14>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the pl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          carboxy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GB/EME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GB/EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GB/EMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GB/EMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
```

```
plectin - human
C;Species: u---
                                                                                                           F;68-283/Domain: alpha-actinin actin-binding
                                                                                                                        C; Superfamily: plectin; alpha-actinin actin-binding
                                                                                                                                        A; Gene: PLEC1
                                                                                                                                                                  A;Cross-references: UNIPARC:UPI0000161AF6; EMBL:U53204; NID:g1477645;
                                                                                                                                                                                  A; Residues: 1-4574 < MCL>
                                                                                                                                                                                              A; Molecule type: mRNA
                                                                                                                                                                                                              A;Status:
                                                                                                                                                                                                                         A; Reference number: H01385
A; Accession: G02520
                                                                                                                                                                                                                                                      submitted to the EMBL Data Library,
                                                                                                                                                                                                                                                                      R;McLean,
                                                                                                                                                                                                                                                                                                                                                        RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;2933-3040/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;2688-2802/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;2579-2686/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;1876-1982/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;3055-3092/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;3041-3112/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;2804-2931/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;2327-2423/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;2210-2316/Domain:
                                                    Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                         ;Species: Homo sapiens (man)
;Date: 21_Dec-1996 #sequence_revision 06-Jun-1997
                                                                                                                                                                                                                                                                   Accession: G02520; McLean, W.H.I.; St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;3080-3360/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;2471-2577/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;2103-2208/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;1984-2101/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                             preliminary; translated from GB/EMBL/DDBJ
70
                          42
                                                                                                                                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                 16
                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                    VQKKTFTKWVN 52
                                                                                                                                                                                                                                                                                                                                                                                                   VOKKTFTKWVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.0%; Scilarity 100.0%; F
Conservative 0;
                                                      Conservative
                                                                                                                                                                                                                                                                      Smith, F.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           leucine zipper motif leucine zipper motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cysteine-rich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WW repeat homology <WW1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                         52
                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                 26
                                                                                  5.0%; Score 11;

; Score 11; DB
; Pred. No. 0.0
0; Mismatches
                                                                 Pred. No.
                                                                                                                                                                                                                                                       March
                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat
                                                                 DB 2;
0.059;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
0.048;
                                                                                                           domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homology
homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VEOTOMOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homology
                                                      0
                                                                                                                                                                                                                                                                                             #text_change 20-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                           domain homology;
homology <ACT>
                                                                                Length 4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <SP21><SP22>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <SP24>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <SP23:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <SP20>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <SP16>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <SP19>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <SP18>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <SP17>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <SP15>
                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                        ribosomal protein
                                                                                                                                                                  PIDN: AAB05427.1;
                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
A;Molecule type: mRNA
A;Residues: 1-2196 <GRE>
A;Cross-references: UNIPROT:077291; UNIPARC:UPI00000840B9;
                                                                                                                                                         A;Title: Kakapo, a gene required for adhesi
A;Reference number: Z17707; MUID:99054753;
A;Accession: T13714
A; Status: preliminary; translated
                              A; Accession: T13715
                                                                                                                                   A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                       R; Gregory, S.L.; Brown, N.H.
J. Cell Biol. 143, 1271-1282, 1998
                                                                                                                                                                                                                                                                                                  C; Accession:
                                                                                                                                                                                                                                                                                                                                               C; Species: Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                           kakapo gene protein - fruit fly (Drosophila melanogaster) (fragment)
                                                                                                                                                                                                                                                                                          Date: 13-Aug-1999 #sequence revision 13-Aug-1999; Accession: T13714; T13715
                                                                                                                                                                                                                    for adhesion between
from
  GB/EMBL/DDBJ
                                                                                                                                                                                     PMID:9832555
                                                                                                                                                                                                                                                                                                                      #text_change 09-Jul-2004
                                                                                                                                                                                                                       and
                                                  EMBL: AJ011924; NID: 93758908;
                                                                                                                                                                                                                 layers
```

ä

Drosophi

type: mRNA : 'MM',77-79,'SL',82,'E','WAKDK',108-109,'SILQLD',116-117,'DR',138,'VLRIA',144

```
dystrophin, brain - rat (fragment)

MyAlternate names: Duchenne muscular dystrophy protein

C;Species: Rattus norvegicus (Norway rat)

C;Date: 29-Jan-1993 #sequence_revision 29-Jan-1993 #text_change 09-Jul-2004

C;Accession: S06461

R;Nudel, U; Zuk, D; Einat, P; Zeelon, E.; Levy, Z.; Neuman, S.; Yaffe, D.

Nature 337, 76-78, 1989

A;Title: Duchenne muscular dystrophy gene product is not identical in muscle and brain.
A;Reference number: S06461; MUID:89082658; PMID:2909892

A;Crossron: S06461

A;Status: translation not shown
A;Residues: 1-98 <NUD>
A;Cross-references: UNIPROT:Q63770; UNIPARC:UPI000017768E; EMBL:X14182

C;Genetics:
A;Introns: 3)1
A;Note: the list of introns may be incomplete
C;Superfamily: dystrophin; alpha-actinin actin-binding domain homology; spectrin/dystrop
C;Keywords: alternative splicing
F;6-98/Domain: alpha-actinin actin-binding domain homology (fragment) <AAH>
                                                                                                                                          A;Cross-references:
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references:
A;Note: kak
                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                            S
                        밁
                                                                                                                                                                                                                                                                                                     dystonin isoform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 10
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;Gene: kak
                                                                                       Query Match
Best Local
                                                                                                                             Cross-references: UNIPARC:UPI000016A21F; EMBL:U31851; NID:g1049105; PIDN:AAC50244.1; Superfamily: plectin; alpha-actinin actin-binding domain homology; ribosomal protein
                                                                             Matches
                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 OKKTETKWVN 159
                        220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43
                                                                                                                                                                                                                                                                                                                                                                                             42 VOKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10;
                                                 42
                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QKKTFTKWVN
                                                  VOKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                      VOKKTFTKW
                        VQKKTFTKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                    2 - human (fragment)
                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FlyBase:FBgn0013733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UNIPARC:UPI000002A1A9;
                                                                                                                                                                                                                                                                                                                                                                                                                                   4.1%;
                                                                                                                                                                                                                                                                                                                                                                      16
                        228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.5%;
                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 9;
Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 10;
Pred. No.
                                                                            <u>,</u>
                                                                                                     Score 9;
                                                                                        Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                     No.
                                                                                        No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL: AJ011925;
                                                                                        DB 2;
b. 0.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
. 0.17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
0.33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                            #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                           0
                                                                                                     Length 230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2396
                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NID: g3758910; PIDN: CAA09870.1
                                                                                                                                                                                                                         얁
                                                                                                                                                                                                                         human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                      I49290
                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
 Matches
          Best Local
                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                 24
                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           141
                                                                                                                                                                                                                                                                                                       36
Similarity
9; Conser
```

```
troponin-I scallop (Chlamys nipponensis)
(;Speciles: Chlamys nipponensis (Japanese scallop)
C;Date: 05-Dec-1998 #sequence_revision 05-Dec-1998
C;Accession: JE0233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: Amino acid sequence of troponin-I A; Reference number: JE0233; MUID: 98351986; A; Accession: JE0233
                                                                               A, Molecule type: mRNA
A, Molecule type: mRNA
A, Residues: 1-511 <RES>
A, Residues: 1-511 <RES>
A, Cross-references: UNIPROT:Q60824; UNIPARC:UPI000016CB1A; EM
A, Cross-references: Unipro-actinin actin-binding domain hc
C, Superfamily: plectin; alpha-actinin actin-binding domain homology
                                                                                                                                                                                                                  A;Title: The mouse dystonia musculorum gene is a neural A;Reference number: 149290; MUID:95400297; PMID:7670468 A;Accession: 149290
                                                                                                                                                                                                                                                                                                                               dystonin - mouse (fragment)
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change
C;Accession: I49290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: UNIPARC:UPI000013CB6E; EMBL:U31850; NID:g1049103; C;Superfamily: plectin; alpha-actinin actin-binding domain homology; F;34-248/Domain: alpha-actinin actin-binding domain homology <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-461 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Accession: 139160
R;Brown, A.; Dalpe, G.; Mathieu, M.; Kothary, R.
Genomics 29, 777-780, 1995
A;Title: Cloning and characterization of the neural isoforms
A;Reference number: 139160; MUID:96121394; PMID:8575775
A;Accession: 139160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dystonin isoform 1 - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 24-May-1996 #sequence_revision 24-May-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: protein
A;Residues: 1-292 <TAB>
A;Cross-references: UNIPROT:Q7M3Y3; UNIPARC:UPI0000177780
C;Superfamily: troponin T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R; Tanaka, H.; Ojima, T.; Nishi
J. Biochem. 124, 304-310, 1998
                                                               C;Superfamily: precure, waren actin-binding F;34-248/Domain: alpha-actinin actin-binding
                                                                                                                                                                                                                                                                                    R;Brown, A.; Bernier, G.; Mathieu, M.; Nature Genet. 10, 301-306, 1995
                                                                                                                                                                                              A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 100.0%;
nes 9; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42 VOKKTFTKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RROQEEEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RROQEEBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ojima, T.; Nishita,
4.1%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.1%; Score 9; DB:
100.0%; Pred. No. 0.
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 9; DB 2;
Pred. No. 0.48;
                                               Score
                      Score 9; I
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                             Rossant, J.; Kothary,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from Akazara
PMID:9685719
                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 461;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #text_change 09-Jul-2004
                                             Length 511;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              scallop
                                                                                                                                                                                                                                                                      isoform
                                                                                        EMBL:U22452; NID:g904018; PIC
homology; ribosomal protein 8
gy <ACT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of.
                                                                                                                                                                                                                                                                      0f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 striated
                                                                                                                                                                                                                                                                                                                                                          09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                      bullous pemphigoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIDN: AAC50243.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 adductor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   muscle
```

0

Mismatches

0

Indels

0

Gaps

0

2

```
RESULT 26
I49298
                                                                                  hypothetical protein C23F12.2 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 20-Sep_1999 #sequence_revision 20-Sep-1999 #text_change C;Accession: T15570
                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: UNIPARC:UPI0000028749; EMBL:U25158; NID:g904021; C;Superfamily: plectin; alpha-actinin actin-binding domain homology; F;209-423/Domain: alpha-actinin actin-binding domain homology <ACT>
             submitted to the EMBL Data Library, October 1995 A;Description: The sequence of C. elegans cosmid A;Reference number: Z18371
                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary; translated from GB/EMBL/DDBJA;Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number: A; Accession: I49298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Gene: PAB1857
C; Superfamily:
                                                                     R; Fulton,
                                                                                                                                                             T15570
                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Species: Pyrococcus abyssi
C;Date: 20-Aug-1999 #text_change 09-Jul-2004
C;Accession: C75120
R;anonymous, Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
A;Reference number:
A;Accession: T15570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: The mouse dystonia musculorum gene is a neural isoform A;Reference number: I49290; MUID:95400297; PMID:7670468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Brown, A.; Bernier, G.; Mathieu, M.; Rossant, J.; Kothary, Nature Genet. 10, 301-306, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dystonin isoform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Experimental source: strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Reference number: A; Accession: C75120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       submitted to the EMBL Data Library, July 1999
A;Description: Pyrococcus abyssi genome seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ystonin isoform 2 - mouse (fragment)
;Species: Mus musculus (house mouse)
;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Accession: I49298
                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;Gene: PAB1857
                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cross-references: UNIPROT:Q9V0M7; UNIPARC:UPI000006331C; GB:AJ248285; GB:AL096836; NII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Molecule type: DNA
Residues: 1-602 <KAW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Status: preliminary
                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity hes 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                                                                                                211
                                                                                                                                                                                                                                                                    42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30 GRFKQLQDE 38
                                                                                                                                                                                                                                                                                                                                                                                                                                 1-686 <RES>
                                                                                                                                                                                                                                                                                                        9;
                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein PAB1857 -
                                                                                                                                                                                                                                                                  VOKKTETKW 50
                                                                                                                                                                                                                                VOKKTETKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GREKQLODE 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VOKKTETKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pyrococcus horikoshii hypothetical
                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A75001
                                                                                                                                                                                                                                219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50
                                                                                                                                                                                                                                                                                                                     4.1%; Score 9; DB 2;
100.0%; Pred. No. 1.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Orsay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pyrococcus abyssi (strain Orsay)
                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 9; I
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
lo. 0.94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein PH1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insights into archaeal chromosome stru
                                                                                                                                                                                                                                                                                                                                       Length 686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 602;
                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        о
f
                                                                                                     09-Jul-2004
                                                                                                                                                                                                                                                                                                  ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bullous pemphigoid
                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                            PIDN:AAC52231.1; PI
ribosomal protein s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
```

```
C;Superfamily: dystrophin; alpha-actinin actin-binding domain homology; spectrin/dystrop C;Keywords; actin binding; cytoskeleton; leucine zipper; membrane-associated protein; mu F;30-248/Domain: alpha-actinin actin-binding domain homology <ACT> F;308-417/Domain: spectrin/dystrophin repeat homology <SP01> F;418-526/Domain: spectrin/dystrophin repeat homology <SP02> F;528-637/Domain: spectrin/dystrophin repeat homology <SP03>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: mRNA
A;Residues: 27-246;2839-3343 <TIN2>
A;Residues: 27-246;2839-3343 <TIN2>
A;Cross-references: UNIPARC:UPI0000173E73; UNIPARC:UPI0000173E74;
A;Crose, D.R.; Hill, D.F.; Dickson, G.; Spurr, N.K.; Byth, B.C.; Ma
Nature 339, 55-58, 1989
A;Title: An autosomal transcript in skeletal muscle with homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Tinsley, J.M.
submitted to the EMBL Data Library,
* Deference number: $28381
                                                                                                         F;1015-1122/Domain: spectrin/dystrophin repeat F;1124-1230/Domain: spectrin/dystrophin repeat F;1122-1334/Domain: spectrin/dystrophin repeat F;1339-1450/Domain: spectrin/dystrophin repeat
                                                                                                                                                                                                                   F;686-796/Domain: spectrin/dystrophin repeat homology <SP04>
F;804-902/Domain: spectrin/dystrophin repeat homology <SP05>
F;906-1013/Domain: spectrin/dystrophin repeat homology <SP06>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 2944-3433 < LOV>
A; Cross-references: UNITARC: UPI0000000673;
C; Comment: This protein is found primarily
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number: S03966; A; Accession: S03966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Residues: 1-3433 <TIN1>
A;Cross-references: UNIPROT:P46939; UNIPARC:UPI0000137B6A; EMBL:X69086; NID:934811; PIDN A;Cross-references: UNIPROT:P46939; UNIPARC:UPI0000137B6A; EMBL:X690866; NID:934811; PIDN R;Tinsley, J.M.; Blake, D.J.; Roche, A.; Fairbrother, U.; Riss, J.; Byth, B.C.; Knight, Nature 360, 591-593, 1992
Nature 360, 591-593, 1992
A;Title: Primary structure of dystrophin-related protein.
A;Reference number: S28914; MUID:93096045; PMID:1461283
A;Accession: S28914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
S28381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-874 <FUL>
A;Residues: 1-874 <FUL>
A;Cross-references: UNIPROT:Q18109; UNIPARC:UPI000007B862; EMBL:U39676; NID:g1049427; P1
A;Experimental source: strain Bristol N2; clone C23F12
C;Genetics:
                                                                               F;1451-1541/Domain: spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GDB:119851; OMIM:128240
A;Map position: 6q24-6q24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N;Alternate names: dystrophin-related protein C;Species: Homo sapiens (man) C;Date: 17-Apr-1993 #sequence_revision 03-Oct-1995 C;Accession: S28381; S28914; S03966
                                                                                                                                                                                                                                                                                                              F;638-685/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene: GDB:UTRN; DMDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Map position: X
A; Introns: 27/3; 136/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                utrophin -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Gene: CESP: C23F12.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          regenerating muscle.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Accession: S28381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
les 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSHDIVDGN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                         spectrin/dystrophin hinge
                                                                                                                                                                                                                                                                              spectrin/dystrophin
                                   spectrin/dystrophin
spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transcript in skeletal muscle with homology to dystrophin 03966; MUID:89238543; PMID:2541343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240/3; 292/1; 319/1; 346/3; 368/1; 405/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s; Score 9; DB 2
s; Pred. No. 1.3
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         November 1992
                                                       repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL:X15488; NID:g30933; PIDN:CAA33515.1; PID at the neuromuscular junctions in adult muscl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                                                                                         homology <SP08>
homology <SP09>
                                                                                                                                                                                               homology <SP07>
homology #status atypical <SP11>
homology <SP12>
homology <SP13>
homology <SP14>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 874;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL:X69086
arsden, R.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           496/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Walsh,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           525/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IJ
```

```
F;2227-233/Domain: 8
F;2335-2440/Domain: 8
F;2434-2556/Domain: 8
F;2444-2556/Domain: 8
F;2558-2688/Domain: 8
F;2690-2797/Domain: 8
F;2798-2869/Region: W
F;2817-3117/Region: C
F;3328-33284/Region: 1
F;3328-3349/Region: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dystrophin,
N; Alternate
C; Species: G
C; Date: 07-S
C; Accession:
R; Lemaire, C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RiLemaire, C.; Heilig, R.; Mandel, J.L.
Nucleic Acids Res. 16, 11815-11816, 1988
A,Title: Nucleotide sequence of chicken dystrophin cDNA.
A;Reference number: S02041; MUID:89098331; PMID:3062582
A;Accession: S02041
                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Heilig, R.; Lemaire, C.; Mandel, J.L.

Nucleic Acids Res. 15, 9129-9142, 1987

A;Title: A 230kb cosmid walk in the Duchenne muscular dystrophy gene: detection of a con A;Reference number: S09071; MUID:88067745; PMID:2825128

A;Recession: S71487

A;Rolecule type: DNA

A;Residues: 222-281 <HEI

A;Cross-references: UNIPARC:UPI0000173E72

A;Cross-references: UNIPARC:UPI0000173E72

C;Comment: Dystrophin is proposed to play a role in anchoring the cytoskeleton to the play comment: Dystrophin; alpha-actinin actin-binding domain homology; spectrin/dystropic. Superfamily: dystrophin; alpha-actinin actin-binding cytoskeleton; leucine zipper; membrane-agency actin binding; cytoskeleton; leucine zipper; membrane-agency actin binding; calmodulin binding; cytoskeleton; leucine zipper; membrane-agency actin binding; calmodulin binding; cytoskeleton; leucine zipper; membrane-agency actin binding; calmodulin binding; cytoskeleton; leucine zipper; membrane-agency actin binding; cytoskeleton; leucine zipper; me
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Residues: 1-3660 <LEM>
A;Cross-references: UNIPROT:P11533; UNIPARC:UPI00001294D5; E
A;Note: 1869-His, 1885-Arg, and sequences lacking 1171-Met w
R;Lemaire, C.; Heilig, R.; Mandel, J.L.
EMBO J. 7, 4157-4162, 1988
A;Title: The Chicken dystrophin cDNA: striking conservation
A;Reference number: S02013; MUID:89210800; PMID:3072195
A;Accession: S02013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;1975-2081/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Molecule type: mRNA
A;Residues: 1-3573,'HA',3576-3660 <LEM2>
A;Cross-references: UNIPARC:UPI0000173871
                                                                                                                                                                                                                          F;253-327/Region: hinge
F;340-449/Domain: spectrin/dystrophin repeat homology <SP01>
F;340-449/Domain: spectrin/dystrophin repeat homology <SP02>
F;450-558/Domain: spectrin/dystrophin repeat homology <SP03>
F;560-669/Domain: spectrin/dystrophin repeat homology <SP03>
F;670-719/Region: hinge
                         F;1049-1156/Domain: spectrin/dystrophin repeat
F;1158-1265/Domain: spectrin/dystrophin repeat
F;1267-1369/Domain: spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ystrophin, muscle - chicken
,Alternate names: duchenne muscular dystrophy protein
,Species: Gallus gallus (chicken)
,Bate: 07-Sep-1990 #sequence_revision 27-Jun-1994 #text_change 09-Jul-2004
,Bates: 07-Sep-1990 #sequence_revision 27-Jun-1994 #text_change 09-Jul-2004
,Accession: S02041, S02013, S71487
,Accession: S02041, S02013, S71487
,Accession: S02041, S02013, S71487
                                                                                                                         ;720-830/Domain: spectrin/dystrophin repeat homology <SP04>;838-936/Domain: spectrin/dystrophin repeat homology <SP05>;940-1047/Domain: spectrin/dystrophin repeat homology <SP06>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Status: nucleic acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                             ;18-237/Domain: alpha-actinin actin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Status: translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32 VQKKTFTKW 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42 VOKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : spectrin/dystrophin r
: spectrin/dystrophin r
: spectrin/dystrophin r
: spectrin/dystrophin r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hinge
WW repeat homology <WW1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            leucine zipper motif leucine zipper motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cysteine-rich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin
spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 9;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat
repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat
repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                 domain homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            homology
homology
homology
homology
homology
homology
homology
                            homology <SP08>
homology <SP09>
homology
                                                                                                    homology <SP07>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 3433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <SP15>
<SP16>
<SP17>
<SP18>
<SP19>
<SP20>
<SP21>
<SP10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL:X13369; NID:g63369; were also found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           о
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the C-terminal coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           an
```

```
N;Alternate names: duchenne muscular dystrophy protein
C;Species: Mus musculus (house mouse)
C;Species: Mus musculus (house mouse)
C;Date: 22-Nov-1993 #sequence_revision 03-Nov-1995 #text_change 09-Jul-2004
C;Accession: S28916; B27162; S10922; C43837; B40134
C;Accession: S28916; B27162; S10922; C43837; B40134
C;Accession: S28916; M.J. 1992
Nucleic Acids Res. 20, 1725-1731, 1992
A;Title: Human and murine dystrophin mRNA transcripts are differentially expressed dur A;Reference number: S28916; MUID:92253376; PMID:1579466
A;Reference number: S28916
A;Reference number: S28916
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
A;Molecule type: mRNA
A;Residues: 1-3678 <BIE>
A;Cross-references: UNIPROT:P11531; UNIPARC:UPI00000279E7; EMBL:M68859
A;Cross-references: UNIPROT:P11531; UNIPROT:P11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
S28916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;2801-2928/Domain:
F;2930-3037/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;2420-2467/Region:
F;2468-2574/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F;1986-2103/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;1878-1984/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;1787-1877/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1680-1784/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F;1572-1678/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;1480-1570/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Complete cloning of the Duchenne muscular dystrophy A;Reference number: A90897; MUID:87273512; PMID:3607877 A;Accession: B27162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;3079-3357/Region:
F;3481-3502/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;2685-2799/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;2576-2683/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;2323-2419/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;2105-2211/Domain:
                                                                                                                                                                                                                                                                                                                   R;Nudel, U; Zuk, D., Einat, P.; Zeelon, E.; Levy, Z.; Neuman, S.; Nature 337, 76-78, 1989
A;Ttle: Duchenne muscular dystrophy gene product is not identical A;Reference number: S06461; MUID:89082658; PMID:2909892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;3052-3089/Domain:
                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: UNIPARC:UPI0000177686 R;Nudel, U.; Zuk, D.; Einat, P.; Zeelon,
                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-201 < KOE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dystrophin
                                                                     A; Title: Characterization an A; Reference number: A43837; A; Accession: C43837
                                                                                                                                               R;Rapaport, D.; Ledertein, D.; de Differentiation 49, 187-193, 1992
                                                                                                                                                                   A;Cross-references: UNIPARC:UPI0000177687;
R;Rapaport, D.; Lederfein, D.; den Dunnen,
                                                                                                                                                                                                                    A; Residues: 1-106 < NUD>
                                                                                                                                                                                                                                           A; Molecule type: mRNA
                                                                                                                                                                                                                                                                       A;Status: translation not
                                                                                                                                                                                                                                                                                              A; Accession: S10922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: not compared with
A; Molecule type: mRNA
A; Residues: 'MREHLKG', 3069-3181
                                              A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;3038-3075/Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;2213-2319/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VOKKTETKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VOKKTETKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative (

spectrin/dystrophin r
spectrin/dystrophin r
spectrin/dystrophin r
spectrin/dystrophin r

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin hinge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hinge
WW repeat homology <WW1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      spectrin/dystrophin
spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spectrin/dystrophin spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cysteine-rich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          spectrin/dystrophin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              leucine zipper motif leucine zipper motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50
                                                                                              and cell type distribution of 7; MUID:92316332; PMID:1377655
                                                                                                                                                                                                                                                                       shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Score 9; DB 1
%; Pred. No. 5.1
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       n repeat
n repeat
n repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat
repeat
repeat
repeat
repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat
                                                                                                                                                                                                                                                                                                                                                                                             E.; Levy, Z.; Neuman,
                                                                                                                                                                      EMBL:X14183
J.T.; Grootscholten,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homology
homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          homology
homology
homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YEOTOMOT A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 3660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <SP20>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <SP17>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <SP23><SP24>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <SP22>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <SP19>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <SP16>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <SP13>
                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         differentially expressed durin
                                                                                                                             novel,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (DMD)
                                                                                                                                                                                                                                                                                                                                                                                                s:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atypical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atypical <SP14>
                                                                                                                                                                           P.M.; Van Ommen, G.J.; .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                             major
                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                  Yaffe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                    muscle
                                                                                                                             transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       October 1991
Kunkel, L.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <SP11>
                                                                                                                                                                                                                                                                                                                                                                                                     Ö
                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,</u>
                                                                                                                                                                                                                                                                                                                                                       brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ت.
ی.
```

e E Ç.

```
R; Beggs,
J. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K. ansen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 2000

A; Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C. C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali, Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A; Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.
A; Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A; Reference number: A86141; MUID:21016719; PMID:11130712
                                                  ΩΩ
                                                                                                                                                   RESULT 32
FAHUA2
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Introns: 11/1
A;Note: the list of introns may be incomplete C;Superfamily: dystrophin; alpha-actinin actin C;Keywords: actin binding; alternative splicing
                                                                                                                       alpha-actinin 2 - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: mRNA
A;Residues: 300-676,'F',678-1390 <HOF>
A;Cross-references: UNIPARC:UPI0000177689; GB:M18025
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: UNIPARC:UPI0000177688
A;Note: sequence extracted from NCBI backbone
R;Hoffman, E.P.; Monaco, A.P.; Feener, C.C.; Kunkel, L.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Residues: 1-592 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar_2001 #sequence_revision 02-Mar-2001 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Science 238, 347-350, 1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Accession: B40134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K., nsen, N.F.; Hughes, B.; Huizar, L.
                                                          ;Species: Homo sapiens (man)
;Date: 16-Oct-1992 #sequence_revision 06-Jan-1995 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;Superfamily: dystrophin; alpha-actinin actin-binding domain homology; ;Reywords: actin binding; alternative splicing; 14-233/Domain: alpha-actinin actin-binding domain homology <ACT>;340-449/Domain: spectrin/dystrophin repeat homology <SP1>;450-558/Domain: spectrin/dystrophin repeat homology <SP2>;2797-2924/Domain: spectrin/dystrophin repeat homology <SP3>;2797-2924/Domain: spectrin/dystrophin repeat homology <SP3>;3048-3085/Domain: WW repeat homology <WW1>
                                                Accession: A40199
                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cross-references: UNIPROT:004096; UNIPARC:UPI00000A1725; GB:AE005172; NID:g1931653;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: F86242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title: Conservation of the Duchenne muscular dystrophy gene in mice Reference number: A40134; MUID:88018015; PMID:3659917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                       position: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31
A.H.; Byers, T.J.; Knoll, Chem. 267, 9281-9288, 1992
                                                                                                                                                                                                                                                                                              145
                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16
                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 9; Conserv
                                                                                                                                                                                                                                              EEEERKRR 73
                                                                                                                                                                                                                                                                                            EEEERKRR 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VQKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98896-95855 [imported] - Arabidopsis thaliana dopsis thaliana (mouse-ear cress)
                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24
                                                                                                                                                                                                                                                                                                                                                                3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                                                                                                   .0%;
                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                Score Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 9;
Pred. No.
                      J.H.M.; Boyce,
                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                . No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                                                                                . pb
                                                                                                                                                                                                                                                                                                                                                                   .
6 N
                    F.M.; Bruns,
                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                     Length 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 3678;
                                                                                                                                                                                                                                                                                                                                       Indels
                    G.A.P.; Kunkel,
                                                                                                                                                                                                                                                                                                                               ,0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and humans
                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
A;Map position: 1q42-1q43
C;Complex: homodimer
C;Superfamily: alpha-actinin; alpha-actinin actin-binding domain homology; calmodul
C;Keywords: actin binding; cardiac muscle; duplication; EF hand; heart; homodimer;
F;37-250/Domain: alpha-actinin actin-binding domain homology <ACT>
F;37-250/Domain: spectrin/dystrophin repeat homology <SP1>
F;400-505/Domain: spectrin/dystrophin repeat homology <SP2>
F;515-627/Domain: spectrin/dystrophin repeat homology <SP3>
F;515-627/Domain: spectrin/dystrophin repeat homology <SP4>
                                               Ś
                                                                                                                                                                                         F;636-740/Domain: spectrin/dystrophin repeat homology <SP3>
F;753-785/Domain: calmodulin repeat homology <SP4>
F;759-821/Domain: calmodulin repeat homology <EF1>
F;789-821/Domain: calmodulin repeat homology <EF2>
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: UNIPROT:P35609; UNIPARC:UPI0000125088; GB:M86406; NID:g178053; PIDN C;Comment: The EF hand structures are predicted to be incapable of binding calcium. C;Comment: The amino-terminal domain is involved in actin binding, the middle domain in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: mRNA
A; Residues: 1-894 < BEG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: Cloning and characterization of two human skeletal muscle alpha-actinin genes A;Reference number: A40199; MUID:92250531; PMID:1339456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GDB:127919; OMIM:102573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: GDB: ACTN2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Accession: A40199
                                                                                                            Matches
                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          by the adjacent chain
                                                                                                         Local Similarity
les 8; Conser
                                                 83
                                         SGERLPKP 90
                                                                                                            Conservative
87
                                                                                                 100.0%; F1
                                                                                                      %; Score 8; DB 1
%; Pred. No. 14;
0; Mismatches
                                                                                                                                       DB 1;
                                                                                                      0;
                                                                                                                                                                 Length 894
                                                                                                         0
                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                   calmodulin
                                                                                                         0
```

alpha-actinin 2, skeletal muscle splice form SK - chicken ;Species: Gallus gallus (chicken);Date: 01-Dec-1989 #sequence_revi _revision_01-Dec-1989 #text_change 09-Jul-2004

A;Reference number: S02032; MUID:89064821; PMID:3197725

Eur. J. Biochem. 177, 649-655, 1988 A;Title: Primary structure of chicken skeletal muscle T.; Yanagisawa, M.; Imamura, M.; Hamada, Y.; Masaki, fibroblast alpha-actinins

13

dedu

Accession: S02032

Status: not compared with conceptual translation

A; Molecule type: mRNA Residues: 1-897 <ARI>

A;Cross-references: UNIPROT:P20111; UNIPARC:UPI0000125086; GB:X13874; NID:g63787; PIDN:C A;Note: part of this sequence was confirmed by protein sequencing R;Tokuue, Y; Goto, S; Tammura, M; Obinata, T; Masaki, T; Endo, T.

Exp. Cell Res. 197, 158-167; 1991
Exp. Cell Res. 197, 1991
Exp. Cell Res. 197

A;Status: preliminary; translated from GB/EMBL/DDBJA;Molecule type: mRNAA;Residues: 1-897 <TO2>

R;Parr, Cross-references: UNIPARC:UPI0000125086; EMBL:X59247; NID:g63030; PIDN:CAA41935.1;

PID

submitted to the EMBL Data Library, October 1992
A;Reference number: S36393
A;Accession: S36393

A; Molecule type: DNA A; Residues: 662-867 < PAR1>

A;Cross-references: UNIPARC:UPI0000177553; EMBL:X68801 R;Parr, T.; Waites, G.T.; Patel, B.; Millake, D.B.; Critchley, Eur. J. Biochem. 210, 801-809, 1992

D.R.

alternatively spli

A;Title: A chick skeletal-muscle alpha-actinin gene gives rise to two A;Reference number: S27391; MUID:93130905; PMID:1483465 A;Accession: S27391

A; Molecule type: DNA A; Residues: 707-867

-references: UNIPARC:UPI0000177554; EMBL:X68801

```
C;Genetics: 721/3; 770, A;Introns: 721/3; 770, A;Note: the list of it C;Complex: homodimer C;Superfamily: alpha-C;Keywords: actin bin. F;40-253/Domain: alph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Note: the authors translated the codon AAA for residue 714 as Leu and AAG for residue C;Comment: The EF hand structures are predicted to be incapable of binding calcium. C;Comment: The amino-terminal domain is involved in actin binding, the middle domain in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Imamura, M.; Masaki, T.
J. Biol. Chem. 267, 25927-25933, 1992
A;Title: A novel nonmuscle alpha-actinin. Purification and characterization of chicken A;Reference number: A45090; MUID:93100311; PMID:1334489
A;Accession: A45090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Status: preliminary
A;Molecule type: protein
A;Residues: 294-316 < IM2>
A;Cross-references: UNIPARC:UPI00000FBBFF
A;Experimental source: lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Imamura, M.; Sakurai, T.; Ogawa, Y.; Ishikawa, T.; Goto, K.; Masaki, T. Eur. J. Biochem. 223, 395-401, 1994
A;Title: Molecular cloning of low-Ca(2+)-sensitive-type non-muscle alpha-A;Reference number: 845673; MUID:94333327; PMID:8055908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alpha-actinin, 115K nonmuscle isoform - chicken
C;Species: Gallus gallus (chicken)
C;Date: 10-Dec-1994 #sequence_revision 03-Nov-1995 #text_change 09-Jul-2004
C;Accession: S45673; A45090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Note: sequence extracted from NCBI backbone (NCBIP:120852)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;792-824/Domain: calmodulin repeat
                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: S45673
RESULT 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Superfamily: alpha-actinin; alpha-actinin actin-binding domain homology; calmodulin re; Keywords: actin binding; alternative splicing; duplication; EF hand; homodimer; skelet; 40-253/Domain: alpha-actinin actin-binding domain homology <ACT>
;283-394/Domain: spectrin/dystrophin repeat homology <SP1>
;403-509/Domain: spectrin/dystrophin repeat homology <SP2>
;518-630/Domain: spectrin/dystrophin repeat homology <SP3>
;518-630/Domain: spectrin/dystrophin repeat homology <SP3>
;639-743/Domain: spectrin/dystrophin repeat homology <SP3>
;639-748/Domain: calmodulin repeat homology <SP4>
                                                                                                                                                                                                                                                                                      Superfamily: alpha-actinin; alpha-actinin actin-binding dom; Superfamily: alpha-actinin; alpha-actinin actin-binding dom; Keywords: actin binding; EF hand
',42-255/Domain: alpha-actinin actin-binding domain homology
',285-396/Domain: spectrin/dystrophin repeat homology <SP1>
',405-511/Domain: spectrin/dystrophin repeat homology <SP2>
',520-632/Domain: spectrin/dystrophin repeat homology <SP3>
',541-745/Domain: spectrin/dystrophin repeat homology <SP4>
',641-745/Domain: calmodulin repeat homology <SP4>
',758-790/Domain: calmodulin repeat homology <EF1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cross-references: UNIPROT:Q90734; UNIPARC:UPI0000125091; GB:D26597;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Residues: 1-904 < IMA>
                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83
                                                                               85
                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 100.0%;
8; Conservative
                                                                                                                                                                                        8
                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SGERLPKP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGERLPKP 90
                                                                                                                                  SGERLPKP 90
                                                                                  SGERLPKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  770/3; 792/3; 845/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           introns
                                                                               92
                                                                                                                                                                                                               3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        incomplete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 8; 1; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                        0
                                                                                                                                                                                                                  Score 8;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                homology <EF2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                  DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 897;
                                                                                                                                                                                        <u>,,</u>
                                                                                                                                                                                                                                           Length 904;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      non-muscle alpha-actinin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         domain homology; calmodulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                        0
                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NID:g517084; PIDN
                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
```

```
K;EL-Husseini, A.E.D.; Kwasnicka, D.; Yamada, T.; Hirohashi, S.; Vincent, Biochem. Biophys. Res. Commun. 267, 906-911, 2000
A;Title: BERP, a novel ring finger protein, binds to alpha-actinin-4.
A;Reference number: JC7186; MUID:20139748; pMID:10673389
A;Molecule ****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JC7186
alpha-actinin-4 - rat
alpha-actinin-4 - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 04-Mar-2000 #sequence_revision 04-Mar-2000 #text_change 09-Jul-2004
C;Accession: JC7186
C;Accession: JC7186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Notatuo. F----
A; Molecule type: DNA
A; Residues: 1-1089 <SEE>
A; Cross-references: UNIPROT: Q9X908;
A; Cross-references: Strain A3 (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Comment: This protein, a calcium-insensitive and nonmuscle form of alpha-actinin implifinger protein, that acts to anchor microfilaments to various cellular structures. C;Superfamily: alpha-actinin; alpha-actinin actin-binding domain homology; calmodulin re C;Keywords: brain; EF hand; microfilament
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: mrNA
A;Residues: 1-911 <ELA>
A;Cross-references: UNIPROT:Q9QXQ0; UNIPARC:UPI0000125094; GB:AF190909; NID:g6636118; PI
A;Experimental source: brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Accession: T36663
R;Seeger, K.J.; Harris, D.; Bentley, S.D.; Parkhill, J.; Barrell, B.G.; Rajandream, submitted to the EMBL Data Library, March 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein kinase, transmembrane - Streptomyces coelicolor
C;Species: Streptomyces coelicolor
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 09-Jul-2004
                                                                                              R;Ng, W.V.; Kennedy, S.P.; Mahairas, G.G.; Berquist, B.; Pan, M.; Shukla, H.D.; Lasky, Leithauser, B.; Keller, K.; Cruz, R.; Danson, M.J.; Hough, D.W.; Maddocks, D.G.; Jablurung, K.H.; Alam, M.; Freitas, T. Proc. Natl. Acad. Sci. U.S.A. 97, 12176-12181, 2000
A;Authors: Hou, S.; Daniels, C.J.; Dennis, P.P.; Omer, A.D.; Ebhardt, H.; Lowe, T.M.; Lia, Title: Genome sequence of Halobacterium species NRC-1.
A;Reference number: A84160; MUID:20504483; PMID:11016950
                                                                                                                                                                                                                                                                                                                                                                                           RESULT
E84193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Accession: T36663
A;Status: preliminary; translated from
                                                                                                                                                                                                                                                                                                     chromosome segregation [imported] - Halobacterium sp. NRC-1
C;Species: Halobacterium sp. NRC-1
C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: Z21611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T36663
                                                                                                                                                                                                                                                                                  C; Accession: E84193
A;Molecule type: DNA
A;Residues: 1-1190 <STO>
                                                   A;Status: preliminary
                                                                        A; Accession: E84193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SCOEDB:SCH5.05c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  761 EEEERKRR 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145 EEEERKRR 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SCERLPKP 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGERLPKP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 8; DB 2; Pred. No. 14; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 8; DB 2; Pred. No. 17; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       UNIPARC: UPI00000DAF05; EMBL: AL035636; PIDN: CAB38479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 911,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                              1.M., L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X
.>
```

A;Cross-references: UNIPROT:Q9HS95;

UNIPARC: UPI00000635E5; GB: AE004437; NID: g10579965;

****

```
Science 277, 942-945, 1997
A;Title: Daf-2, an insulin receptor-like gene that regulates longevity and A:Reference number: Z22040; MUID:97400619; PMID:9252323
                                                                                                                                                                               insulin receptor homolog - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 09-Jul-2004
C;Accession: T42047
                                                                                                                                          R;Kimura, K.D.; Tissenbaum, H.A.; Liu, Y.; Ruvkun, Science 277, 942-945, 1997
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                            Ş
                        A;Residues: 1-1846 <KIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Genetics:
A;Gene: smc1
                                        A; Molecule type: mRNA
                                                             A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Reference number: A37792;
A;Accession: A37792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Dubreuil, R.R.; Byers, T.J.; Stewart, C.T.; Kiehart, D.J
J. Cell Biol. 111, 1849-1858, 1990
A;Tille: A beta-spectrin isoform from Drosophila (beta-H)
A;Reference number: A37792; MUID:91035599; PMID:2229176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spectrin beta-H chain - fruit fly (Drosophila melanogaster)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Dubreuil,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Dubreuil, R.R.; Byers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nyMolecule type: mRNA
nyResidues: 1-400,403-410,'QL',411-1645 <DUW>
nyCrose-references: UNIPARC:UPI0000083E7B; EME
nyNote: Met-14 is the probable initiator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Note: Met-14 is the probable initiator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ubmitted to the EMBL Data Library, July 1990 Reference number: S70848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;Residues: 1-1645 <DUB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;36-258/Domain: alpha-actinin actin-binding domain homology ;288-399/Domain: spectrin/dystrophin repeat homology <SP1>;400-510/Domain: spectrin/dystrophin repeat homology <SP2>;851-896/Domain: SH3 homology <SH33>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990-1091/Domain: spectrin/dystrophin repeat homology <SP3>
1303-1408/Domain: spectrin/dystrophin repeat homology <SP4>
1409-1512/Domain: spectrin/dystrophin repeat homology <SP5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;Gene: FlyBase:kst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Accession: S70848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Molecule type: mRNA
          Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: FlyBase:FBgn0004167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Date: 30-Apr-1991 #sequence; Accession: A37792; S70848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Keywords: actin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Species: Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        768
                                                                                                                                                                                                                                                                                                                                                                              43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ж
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 8; Conserv
                                                                                                                                                                                                                                                                                                                                         QKKTFTKW 46
                                                                                                                                                                                                                                                                                                                                                                              QKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LQDEREAV 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LODEREAV 775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative 0;
UNIPROT: 016131; UNIPARC: UPI0000077B82; EMBL: AF012437; NID: 92338417;
                                                                                                                                                                                                                                                                                                                                                                                                                                     3.6%; Score 8;
100.0%; Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S15666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _revision 08-Nov-1996 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL: X53992; NID: g7654; PID: g7655
                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                            <u>۾</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1645;
                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D.P.
                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ß.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 similar in size to vertebra
                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                    diapause
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                      'n
                                                                                                                                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
```

```
A;Cross-references: UNIPROT:002425; UNIPARC:UPI0000110113; C;Genetics:
A;Gene: smal
                                                                                                                                                             R;Austin, J.; Praitis, V.; McKeown, submitted to the EMBL Data Library, A;Description: Sma-l encodes a BH-sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genes Dev. 8, 869-884, 1994

A;Title: Molecular cloning and functional analysis of the adenovirus ElA-associated A;Reference number: A54277; MUID:95011587; PMID:7523245

A;Accession: A54277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Superfamily: transcription coactivator CREB-binding protein; bromodomain homology C;Keywords: phosphoprotein; transcription; zinc finger F;1075-1132/Domain: bromodomain homology <BRO>F;89,507,1136,1295,1497,1834,1977,2062,2320/Binding site: phosphate (Ser) (covalent) F;1734/Binding site: phosphate (Ser) (covalent) (by protein kinase A) #status predict
                                                                                                                                                                                                                          C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change
C;Accession: T42993
                                                                                                                                                                                                                                                              probable spectrin beta chain - Caenorhabditis elegans C;Species: Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Reference number: Z22279
A;Accession: T42993
                                                                                                                                                                                                                                                                                                               T42993
                                                                                                                                                                                                                                                                                                                              RESULT 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GDB:9862958; OMIM:502700 A;Map position: 22q13.2-22q13.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: GDB: EP300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: protein A; Residues: 552-660 < LUN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Title: Adenoviral EIA-associated protein A; Reference number: S60344; MUID: 95174889; A; Accession: S60344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Accession: A54277; S60344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transcription adaptor protein p300 - human
C;Species: Homo sapiens (man)
C;Date: 09-Sep-1994 #sequence_revision 09-Sep-1994 #text_change 09-Jul-2004
C:Date: 09-Sep-1994 #sequence_revision 09-Sep-1994 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Gene: daf-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: preliminary
                                                                                                   Status: preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cross-references: UNIPARC:UPI00001782EB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                144 QEEEERKR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                       QEEEERKR 1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HDIVDGNH 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.6%; Score 8;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                             a BH-spectrin homolog required
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 8; 1; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                     from GB/EMBL/DDBJ
                                                                                                                                                                                    March 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; DB 2;
No. 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               p300 as a functional homologue of the PMID:7870179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2414;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                          EMBL: AF053496; PIDN: AAC08577
                                                                                                                                                                 for
                                                                                                                                                               9
                                                                                                                                                                                                                                                09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e (ser) (covalent) (by
A) #status predicted
                                                                                                                                                               elegans morphogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transcr
```

```
A;NCatus: F---: DA
A;Molecule type: DA
A;Residues: 1-4101 <WIZ>
A;Cross:references: UNIPARC:UPI000017CF3B; EMBL:Z75956; PIDN:CAB00130.1;
A;Cross:references: Clone R31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical protein R31.1 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 09-Jul-2004 C;Accession: T23630; T24242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 42
T23630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   १
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Residues: 1-4101 <WIL>
A;Cross-references: UNIPROT:002425; UNIPARC:UPI000017CF3B; EMBL:Z81570; A;Experimental source: clone K12G11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Kershaw, J.
submitted to the EMBL Data Library, November
                                                                                                                                                                                                                                                                           R;Chelly, J.; Gilgenkrantz, H.; Lambert, M.; Hamard, G.; Chafey, P.; Recan, D.; Cell 63, 1239-1248, 1990
A;Title: Effect of dystrophin gene deletions on mRNA levels and processing in Du A;Reference number: I52806; MUID:91084852; PMID:2261642
A;Accession: I65646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Map position: 9
A; Introns: 29/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A,Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Reference number:
A; Accession: T24242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Lennard, N. submitted to the EMBL Data Library, July 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Reference number: Z19774
A;Accession: T23630
                                                                                                                                                                                                                                                                                                                                                                  Duchenne muscular dystrophy protein - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 04-Oct-1996 #sequence_revision 04-Oct-1996 #text_change 09-Jul-2004
C;Accession: 165646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                           A;Map position: Xp21.2-Xp21.2
C;Superfamily: dystrophin; alpha-actinin actin-binding domain homology; spect
C;Keywords: muscular dystrophy
F;1-125/Domain: alpha-actinin actin-binding domain homology #status atypical
                                                                                                                                                                                                                            A; Molecule type: mRNA
A; Residues: 1-125 < RES>
                                                                                                                                                                                                                                                          A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
                                                                                                                                                                                                         A;Cross-references: UNIPROT:Q14174; UNIPARC:UPI000007156E;
   Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gene: CESP:R31.1
                                                                                                                                                Cross-references: GDB:119850; OMIM:310200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75 OKKTFTKW 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QKKTFTKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QKKTFTKW 50
     Similarity 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QKKTFTKW 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89/3; 184/3; 312/3; 812/2; 1461/3; 1531/3; 2050/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Z19862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.6%; 5c.
100.0%; Pr/
0;
3.2%; 5c.
100.0%; Pr/
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.6%; Score 8;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 8;
Pred. No.
                        Score 7; D
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               core 8; DB 2;
Pred. No. 58;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
         0,
                                           Length 125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
           Indels
                                                                                                                                                                                                             GB:M63075; NID:g181591; PIDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2413/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIDN: CAB04608.1
                                                                                                                     spectrin/dystrop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSPDB:GN00023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2466/2; 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
             0
                                                                                                                                                                                                                                                                                                                            Duchenne
                                                                                                                                                                                                                                                                                                                                                             Katz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Gene: SGD:LSM1; MIDS:YJL124c
A;Cross-references: SGD:S0003660
A;Map position: 10L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Cziepluch, C.; Kordes, E.; Pujol, A.; Jauniaux, J.C. submitted to the Protein Sequence Database, September 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Accession: $56905
R; Cziepluch, C.; Koj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypothetical protein YJL124c - yeast (Saccharomyces cerevisiae)
N;Alternate names: hypothetical protein J0714
C;Species: Saccharomyces cerevisiae
C;Date: 05-May-1995 #sequence_revision 08-Sep-1995 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Ng, W.V.; Kennedy, S.P.; Mahairas, G.G.; Berquist, B.; Pan, Leithauser, B.; Keller, K.; Cruz, R.; Danson, M.J.; Hough, I Jung, K.H.; Alam, M.; Freitas, T. Proc. Natl. Acad. Sci. U.S.A. 97, 12176-12181, 2000 A;Authors: Hou, S.; Daniels, C.J.; Dennis, P.P.; Omer, A.D.; I A;Title: Genome sequence of Halobacterium species NRC-1. A;Reference number: A84160; MUID:20504483; PMID:11016950 A;Accession: B84165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glucose-1-phosphate thymidylyltransferase [imported] - Halobacterium sp. NRC-1C;Species: Halobacterium sp. NRC-1C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 09-Jul-2004C;Accession: B84165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: UNIPROT:P47017; UNIPARC:UPI00000530D0; EMBL:Z49399; NID:g1008319; PIOC;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S56905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Map position: 10L
C; Superfamily: hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-172 <CZI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: S56905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number: S56891
                                                                                                                         RESULT 46
T49719
           S
                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-218 <STO>
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   A, Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Accession: B84165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                              Cross-references: UNIPROT:Q9HSW4; UNIPARC:UPI0000063526; GB:AE004437; NID:g10579698;
                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                            graD6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                       140 VRRQQEE 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 LRDGRML 75
                                                                                                                                                                                                   92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 7; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DIVDGNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DIVDGNH
                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LRDGRML 64
                                                                                                                                                                                                 VRRQQEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%;
milarity 100.0%;
Conservative 0
                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                            3.2%;
100.0%;
                                                                                                                                                                                                                                                                           Score 7; DB 2; Pred. No. 39; 0; Mismatches
                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1
                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 172;
                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                               Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D.W.; Maddocks, D.(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ebhardt, H.; Lowe, T.M.;
                                     B.; Holland, R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                   0
                                         Nyakatura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; Lasky, S
.G.; Jablo
```

The section of

```
C;Accession; F69944
C; Accession; F69944
C; Bruschi, C.V; Caldwell, B.; Capuano, V.; Carter, N.M.; Cho, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Cho, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Cho, A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E. A; Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F. Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, A;Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maueel Y., M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon, A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Serox akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama, T.; Winters, P.; Wipat, A.; Samamoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, K.; A;Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          conserved hypothetical protein yjbN - Bacillus subtilis
C;Species: Bacillus subtilis
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 31-Dec-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             th, T.; tounserver, S.; O'Gaora, P.
S.; Moule, S.; O'Gaora, P.
Nature 413, 848-852, 2001
A;Authors: Parry, C.; Quail, M.; Rutherford, K.; Simmonds, M.;
A;Title: Complete genome sequence of a multiple drug resistant
A;Title: Complete genome sequence of a policy policy and sequence of a multiple drug resistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     conserved hypothetical protein STY3934 [imported] - Salmonell C, Species: Salmonella enterica subsp. enterica serovar Typhi A, Note: this species has also been called Salmonella typhi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, th, T.; Connerton, P.; Cronin, A.; Davis, P.; Davies, R.M.; Dowd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: Z25022
A; Accession: T49719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-251 <Pi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Reference number: AB0502;
A;Accession: AB0957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Map position: A; Introns: 90/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: UNIPARC:UPI0000179D83; EMBL:AL356172; GSPDB:GN00116; NCSP:B23L21.320
A;Experimental source: BAC clone B23L21; strain OR74A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 18-Nov-2002;Accession: AB0957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cross-references: UNIPARC: UPI000005A692; GB:AL513382; PIDN: CAD03150.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene: NCSP:B23L21.320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Residues: 1-226 <SCH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MELQRIS 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -251 <PAR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EEERKRR 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEERKRR 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Neurospora crassa hypothetical protein B23L21.320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7; 1
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 251;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Salmonella enterica subsp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Skelton, J.; Stevens, K. Salmonella enterica sero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.; Wain, J.; C;
, L.; White, N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PID:g16504785;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Churcher,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            enterica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
```

```
C;Accession: G97246
R;Nolling, J.; Breton, G.; Omelchenko, M.V.; Markarova, c; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
Ş
                                                                                                                                                                                                                                                  .; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R. J. Bacteriol. 183, 4823-4838, 2001
A;Title: Genome Sequence and Comparative Analysis of the A;Reference number: A96900; MUID:21159325, PMID:21359325, A;Accession: G97246
                                                                                                                  A; Gene:
                                                                                                                                                                                                              A; Molecule type: DNA
                                                                                                                                                                                                                                A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                     C;Date: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 09-Jul-2004 C;Accession: G97246
                                                                                                                                                                                                                                                                                                                                                                                                           araC-type DNA-binding domain-containing protein, transcription regulator [imported]
C;Species: Clostridium acetobutylicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Superfamily: ATP-NAD(H)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Gene: yjbN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: UNIPROT:O31612; UNIPARC:UPI000006021B; GB:299110; GB:AL009126; NID:EA;Experimental source: strain 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary; nucleic acid A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis. A;Reference number: A69580; MUID:98044033; PMID:9384377 A;Accession: F69844
                                                                                                                                  .;Residues: 1-279 <KUR>
.;Cross-references: UNIPROT:Q97FC2; UNIPARC:UPI0000CA649; GB:AE001437; PIDN:AAK80762.1;
\;Experimental source: Clostridium acetobutylicum ATCC824
                                        Matches
                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity nes 7; Conserv
                                                                                                                    CAC2818
  114 RVHLENM 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174 SKGDQVS 180
                                    Similarity 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1-266 <KUN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SKGDOVS 13
                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%;
                                                          3.2%; Score 7; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    kinase
                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence not shown; translation
                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                            DB 2;
                                      0;
                                                                            Length 279;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 266;
                                      Indels
                                                                                                                                                                                                                                                                                                                                                 K.S.;
                                                                                                                                                                                                                                                                                         Solvent-Producing Bacterium
                                                                                                                                                                                                                                                                                                                                                 Zeng, Q.; Gibson,
                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                      Gaps
                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                 R.;
                                                                                                                                                                                                                                                                                                                                                   Lee
                                                                                                                                                                                                                                                                                           Clo
                                                                                                                                                                                                                                                                                                                                                                                                                               ß
```

```
A; Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E. C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A; Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.
A; Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A; Reference number: A86141; MUID:21016719; PMID:11130712
A; Accession: G86155
A; Molecule type: DNA
A; Residues: 1-290 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hypothetical protein T14P4.13 [imported] - Arabidopsis thallana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 09-Jul-2004 C;Accession: G86155
                                                                                A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chin, C.W.; Chung, M.K.; Conn, I
ansen, N.F.; Hughes, B.; Huizar,
Nature 408, 816-820, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G86155
                                                                                                                                                                                                                                                                                              H.; Tallon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O.; Alonso, 
; Dewar, K.;
```

Marziali,

A;Cross-references: UNIPROT:Q9FWX9; UNIPARC:UPI00000A60B7; GB:AE005172; NID:g9972379;

ΡI

Search completed: March 4, Job time: 72 secs	Oy 144 QEEEERK 150         Db 219 QEEEERK 225	Query Match 3.2%; Score 7; DB 2; Best Local Similarity 100.0%; Pred. No. 51; Matches 7; Conservative 0; Mismatches	A; Map position: 1
2006, 07:10:34			
		Length 290; 0; Indels 0	
		0; Gaps	
·-· -		0,	